

EUPHORBIA SUBGENUS CHAMAESYCE IN CANADA
AND THE UNITED STATES EXCLUSIVE
OF SOUTHERN FLORIDA

LOUIS CUTTER WHEELER

(Continued from page 205)

32. EUPHORBIA FENDLERI T. & G., Rep. Expl. & Surv. Miss. R. to Pacific Ocean **2** (4): 175. 1855.

Glabrous perennial from a taproot woody in age; stems several to numerous from the base, decumbent to erect, up to 15 cm. long, slender, internodes up to 2 cm. long; leaf-blades entire, 3–11 mm. long, ovate-orbicular with oblique base, to lanceolate; petioles mostly ca. 1 mm. long; stipules up to 1 mm. long, distinct, narrowly linear, mostly entire, rarely with a few hairs; peduncles up to 4 mm. long, glabrous; cyathia solitary at the nodes; involucre glabrous, 1.25–1.75 mm. diam., campanulate to turbinate, glabrous without, with short hairs within above opposite the glands; lobes deltoid, shortly-attenuate, hairy within below, equaling the glands; glands reddish, 1.5–4 times as long as wide, concave or convex, up to 1 mm. long; appendages white, glabrous, 0.5–1 mm. long, as wide as the gland at least at the base, obtuse-crenate to entire and narrowly deltoid, or parted into 2–4 narrow segments; fifth gland shorter than the lobes, linear; sinus very broad and little depressed; bracteoles forming a single appendage adnate below to the involucre opposite each gland, 3–5-parted and hairy above; staminate flowers 5–7 per fascicle, 25–35 per involucre; androphores 1.25 mm. long, glabrous; gynophore glabrous, exerted and reflexed at maturity; ovary glabrous, three-lobed; styles glabrous, ca. 0.4 mm. long, bifid to the middle, curved upward, thickened at the base; capsule glabrous, three-angled, wider below, ca. 2.25–2.5 mm. long; seeds quadrangular, 2–2.25 mm. long, ca. 1 mm. radially, 1–1.2 mm. tangentially, ovate-acute radially, angles prominent, front facets concave, mostly smooth, back facets slightly wrinkled, coat white, microreticulate.

KEY TO VARIETIES

Plants decumbent to erect; leaves ovate-orbicular to ovate-lanceolate; appendages obtuse, crenate.....a. var. *typica*.

Plants erect and leaves lanceolate.

Appendages narrowly deltoid, entire.....b. var. *chaetocalyx*.

Appendages parted into 3–4 narrowly linear segments; roots

very thick.....c. var. *triligulata*.

32a. E. FENDLERI T. & G., Rep. Expl. & Surv. Miss. R. to Pacific Ocean **2** (4): 175. 1855, var. TYPICA L. C. Wheeler, Bull. Torr. Bot. Club **63**: 444. 1936. TYPE: Santa Fe, New Mexico, May 4–July 18, 1847, *Fendler 800* (NY!; isotype G!, atypical).

See *Plantae Exsiccatae Grayanae* 726, cited below, for bibliography.—*Anisophyllum Fendleri* (T. & G.) Klotzsch & Garcke, Abh. Akad. Berlin, Phys. **1859**: 26. 1860.—*Chamaesyce Fendleri* (T. & G.) Small, Fl. Se. U. S., 710, 1333. 1903.

E. rupicola Scheele, *Linnaea* **22**: 153. 1849, not Boiss., Elench., 81. 1838. TYPE: "südlich von Neubraunfels: Lindheimer. Juli." (?). (*Lindheimer 290*, (M!) New Braunfels, Texas, July, 1846, designated as type collection by Blankinship, Ann. Rep. Mo. Bot. Gard. **18**: 149. 1907).

E. Fendleri T. & G. var. *dissimilis* Payson, Bot. Gaz. **60**: 379. 1915. TYPE: dry sandy hills, Naturita, Montrose County, Colorado, alt. 5,400 feet, June 27, 1913, *Payson 119* (Herb. University of Wyoming, Laramie; fragment W!; ISOTYPE G!, M!). Some of the plants unusually large-leaved and some of the appendages approaching those of var. *chaetocalyx*.

Chamaesyce Gooddingii Millsp., Field Mus. Pub. Bot. **2**: 405. 1916. TYPE: Lee Canyon, Spring (Charleston) Mountains, Clark County, Nevada, altitude 8,000 feet, Aug. 4, 1913, *A. A. Heller 11058* (F 411087!; photographs G!, W!; ISOTYPES C!, G!, Ph!). A good representative of var. *typica*.

Chamaesyce Greenei (Millsp.) Rydberg *sensu* Rydberg, Fl. Rocky Mts., 544. 1917, and Fl. Pr. Plains, 517, fig. 350. 1932. The second includes some plants rather intermediate between var. *typica* and var. *chaetocalyx*. PLATE 666C.

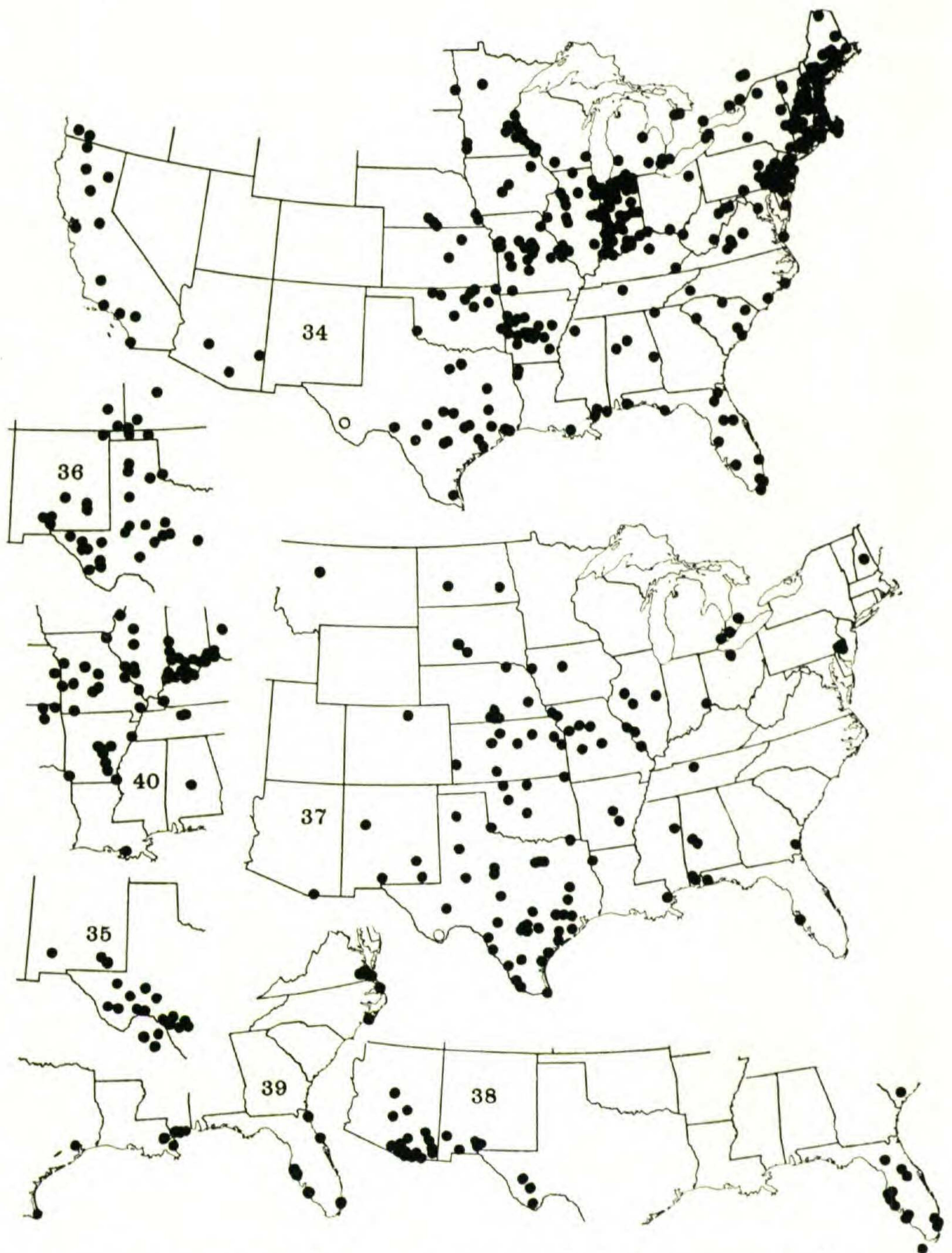
Inyo and San Bernardino Counties, California, east to western Nebraska and Oklahoma, south to Sonora (?), and Texas (MAP 29). Representative specimens seen: KANSAS. Ellis Co.: stony hills, *A. S. Hitchcock 475* (G). OKLAHOMA. Ellis Co.: near Shattuck, *Clifton 3183* (G). Woodward Co.: 8 miles southwest of Woodward, *Goodman 2179* (G). Roger Mills Co.: Antelope Hills, *Goodman 2612* (G). Harper Co.: near Buffalo, *G. W. Stevens 308* (G). Beaver Co.: 15 miles southwest of Beaver City, *G. W. Stevens 350* (G). TEXAS. Bexar Co.: 8 miles south of Bulverde, *Cory 6020* (G). Comal Co.: New Braunfels, *Lindheimer 104* (G). Wilson Co.: Sutherland Springs, 1879, *Ed. Palmer 1203* (G). Howard Co.: Big Springs, *Tracy 7852* (G, Mo). Hood Co.: rocky bluffs, June–Sept., ?, *Reverchon* (G). Taylor Co.: Buffalo Gap Hills, *Cory 8729* (G). Jeff Davis Co.: Davis Mountains, *Tracy 154* (G, Mo). Brewster Co.: 55.4 miles south of Alpine, *Cory 18595* (G). Presidio Co.: 15½ miles southwest of Marfa, *Cory 26319* (G). Kendall Co.: Spanish Pass, *Cory 19308* (G). WYOMING. Weston Co.: Newcastle, June 13, 1896, *Bates* (G). COLORADO. Larimer Co.: *Cowen 126* (G). Weld Co.: Grassland, *Muir 82* (G). Mesa Co.: Grand Junction, *Macbride & Payson 694* (G). Montrose Co.: West Paradox, *Payson 2320* (G). UTAH. Uintah Co.: 8 miles south of Ouray, Uinta Basin, *Rollins 1699* (G). Grand Co.: near Wilson Mesa, *Rydberg &*

Garrett 8382 (G). Emery Co.: Muddy River, 1877, *Ed. Palmer 443* (G). NEVADA. Clark Co.: Las Vegas, *Goodding 2282* (G). ARIZONA. Coconino Co.: Cosnino, *M. E. Jones 4036* (I, NY, O); desert near Tuba, *Clute 91* (G); Williams, July 12–14, 1886, *Bunker* (G); near Flagstaff, *MacDougal 209* (G, US). Yavapai Co.: near Montezuma Castle National Monument, *A. & R. Nelson 2048* (NY). Navajo Co.: Kayenta, *Clute 9* (G); Marsh Pass, *Eastwood & Howell 6616* (G). Cochise Co.: 5 miles northeast of Dagoon, *Maguire 11191* (G, I). For citation of additional specimens and discussion of intergrades see *Bull. Torr. Bot. Club* **63**: 445. 1936; *Bull. So. Calif. Acad.* **33**: 106. 1934; *Bull. So. Calif. Acad. Sci.* **35**: 128. 1936.

Certain plants of this species exhibit a rare tendency. They have occasionally three, four, or even five leaves at a node. The collection showing this tendency most strongly was one infected with rust: below Wheeler Well, rocky hillside, Juniper belt, Clark County, Nevada, May 31, 1936, *I. W. Clokey 7183* (Cl, G). These plants showed as many as five leaves per whorl. Another collection made at the same place and time which was not infected with rust had only opposite leaves: *Clokey 7184* (Cl). This suggested that the abnormality might have been induced by the pathogen. However another perfectly healthy collection from the same general region showed some whorled leaves: gravelly slope with *Juniperus* and *Cercocarpus*, Harris Springs Road, Spring (Charleston) Mountains, Clark Co., Nevada, July 16, 1937, *Clokey 7578*, *Pl. Exs. Gray. 726* (G). *MacDougal 209* (US) from Arizona also shows three leaves in a whorl in one rusty plant. That this variation is not confined to this region is shown by a collection which bears not only one whorl of four leaves but also one unpaired leaf. The collection bears only the data "*Rio Grande, Wright 1848*" (G).

Previously, *Bull. Torr. Bot. Club* **63**: 444. 1936, I made the error of combining the locality for Pope's collection from Big Springs of the Colorado River, Texas, with New Mexico, the state from which *Fendler 800* came.

32b. *E. FENDLERI* T. & G. var. *CHAETOCALYX* Boiss. in DC. *Prod.* **15** (2): 39. 1862. TYPE: mountain sides near Frontera, El Paso County, Texas, Apr. 3, 1852, *C. Wright 1847* (Ge!; photographs G!, W!; ISOTYPE G!). Not the extreme of the variety but rather closer to *typica* but nevertheless acceptable in var. *chaetocalyx*.—*Chamaesyce chaetocalyx* (Boiss.) Wooton & Standley, *Contr. U. S. Nat. Herb.* **16**: 144. 1916.—*E. chaetocalyx* (Boiss.) Tidestrom, *Proc. Biol. Soc. Wash.* **48**: 40. 1935. PLATE 666D.



MAP 34, dots range of *EUPHORBIA SUPINA*, circle *E. INOPINA*; 35, *E. ACUTA*; 36, *E. LATA*; 37, dots *E. SERPENS* in Canada & U. S., circle *E. GOLONDRINA*; 38, *E. HYSSOPIFOLIA* in U. S.; 39, *E. AMMANNIOIDES* in U. S.; 40, *E. HUMISTRATA* (Virginian stations omitted).

Arizona, New Mexico, and western Texas (MAP 31). Representative specimens seen: TEXAS. Culberson Co.: *Cory 1964* (G). Crockett Co.: 11.9 miles southwest of Leon Powell, *Cory 3191* (G). Brewster Co.: Chisos Mountains, *Mueller 8077* (M). For citation of additional specimens see Bull. Torr. Bot. Club **63**: 445. 1936.

Frontera seems to be missing on the modern maps. It is located on the Rio Grande a few miles above El Paso. It is shown on the general map, which is first, in the part entitled "Topographical Maps, Profiles, and Sketches", in Rep. Expl. & Surv. Miss. R. to Pacific Ocean. **11**:—1859.

32c. E. FENDLERI T. & G. var. TRILIGULATA L. C. Wheeler, Bull. Torr. Bot. Club **63**: 445. 1936. TYPE: cliffs above Boquillas Canyon, Boquillas, Brewster County, Texas, July 12, 1931, *Moore & Steyermark 3444* (G!; ISOTYPES CA!, D!, Ph!). A very distinctive variant known only from the type collection (MAP 29). PLATE 666E.

33. EUPHORBIA ASTYLA Engelm. ex Boiss. in DC. Prod. **15** (2): 40. 1862. TYPE: "Valley of the Nazas River" [Coahuila or Durango], Mexico, Apr. 15, 1847, *J. Gregg 457* (M 149805!; fragment F!; photographs G!, W!; probable isotype G!). A small but otherwise typical plant.—*Chamaesyce astyla* (Engelm.) Millsp., Field Mus. Pub. Bot. **2**: 408. 1916.

Glabrous, perennial from a root up to 6 mm. thick; stems several to numerous, 4–23 cm. long, prostrate to erect, 0.6–2 mm. thick, internodes up to 2 cm. long but predominantly 3–6 mm. long; leaves sessile, 2–8 mm. long, orbicular-reniform to ovate-acute, base oblique, often clasping, margin entire: stipules united to form a scale ca. 0.5 mm. wide and mostly only ca. 0.2 mm. high, minutely lacerate and bearing a fringe of very short hairs on the inner margin; cyathia solitary at the nodes, mostly toward or at the stem-tips where often much congested by the very short internodes; peduncles 0.5–1.4 mm. long, stout; involucre glabrous outside, densely short-hairy inside especially at summit and somewhat downward beneath the glands, broadly campanulate to obconical-campanulate, 1.4–1.6 mm. in diam.; lobes narrowly triangular, equaling the glands; glands transversely oval to oblong, generally slightly depressed in the middle, 0.4–0.6 mm. long; appendages white, glabrous, $\frac{1}{2}$ – $1\frac{1}{2}$ times as wide as gland, entire or crenulate; 5th gland absent or present as a mere papilla; sinus U-shaped, not depressed, densely hairy; bracteoles numerous, glabrous below, pubescent above, ca. $\frac{2}{3}$ as long as the androphores, some united below and often adnate to the involucre beneath the glands; staminate flowers 3–6 per fascicle, 22–26 per cyathium; androphores glabrous, 1.4–1.6

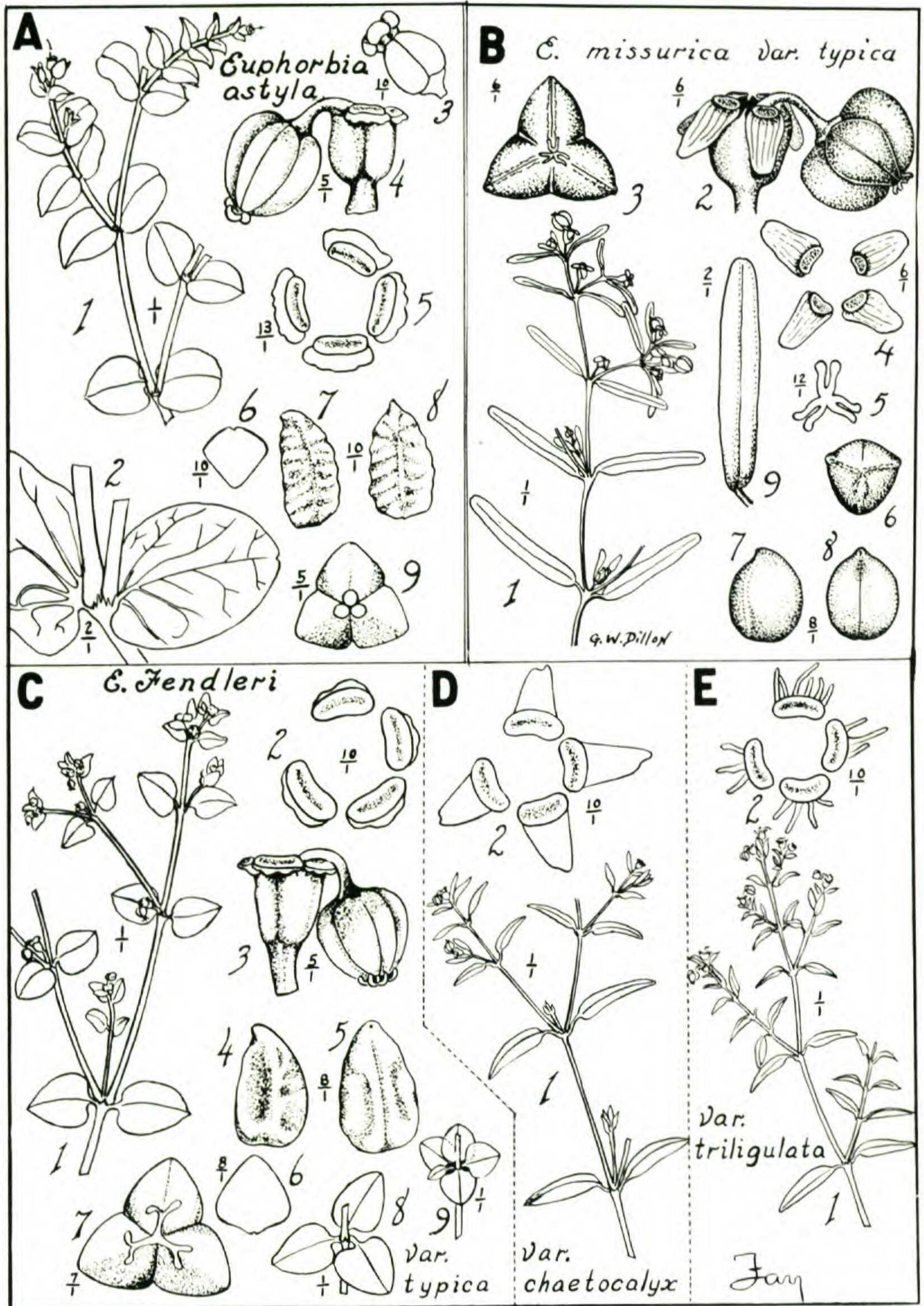
mm. long; gynophore glabrous, soon exerted and usually reflexed; ovary glabrous, 3-angled; styles 0.3–0.4 mm. long, entire, sometimes medianly creased, stigmas thickly round-capitate; capsule glabrous, subacutely 3-lobed, slightly wider below the equator, 1.9–2.6 mm. long, one carpel often sterile and shriveled; seeds sharply quadrangular, 1.5–1.7 mm. long, 0.9–1 mm. tangentially, 0.8–1 mm. radially, ovate radially, ventral facets plane to slightly convex, all traversed by irregular low rounded frequently anastomosing ridges separated by narrow grooves, angles often notched, gelatinous coat sordid to chalky white, very thick, microreticulate.—PLATE 666A.

Rare and local in Coahuila and Durango (?), and in Pecos County, Texas (MAP 33). Additional specimens seen: TEXAS: Pecos Co.: *Cory 1960* (G). MEXICO: COAHUILA: 1 mile south of Hermanas, prostrate on heavy alkaline soil, *Johnston 7060* (G); 4 miles west of Cuatro Cienagas, middle of saline flats in very alkaline soil (with *Dondia*, *Allenrolfea*, *Atriplex*, etc.) prostrate, succulent, brittle, *Johnston 7135* (G); Sierra del Rey, *Purpus 4512* (F, G, M, US).

The collector's number on the type bears some illegible suffix and the notation that it was mixed with 457a.

34. EUPHORBIA HOOVERI L. C. Wheeler, Proc. Biol. Soc. Wash. **53**: 9. 1940. TYPE: Yettem, Tulare County, California, June 30, 1937, *R. F. Hoover 2583* (G!; ISOTYPE W!).

Annual; stems prostrate or decumbent, to 20 cm. long, glabrous, from 1 mm. in diam. near the tips to as much as 3.5 mm. in diam. at the base, internodes as much as 1.5 cm. long, shorter toward the stem-tips; petioles ca. 0.5 mm. long; blades 2–5 mm. long, orbicular-cordate to orbicular-reniform, glabrous, papillate, margin with sharp white teeth; stipules united, white, deeply lacerate; peduncles ca. 0.5 mm. long; cyathia solitary in the axils; involucre 1.7–2 mm. in diam., campanulate, glabrous without and within except beneath the glands; lobes much exceeding the glands, narrowly deltoid, lacinate; glands transversely oval, ca. 0.5 mm. long, slightly cupped, at first red, then olive; appendages white, glabrous, parted into 3–5 ligules ca. 1 mm. long; 5th gland of 1 or 2 filiform segments equaling the lobes; sinus narrowly V-shaped, not depressed; bracteoles united only at the base, filiform, sparsely hairy, ca. $\frac{2}{3}$ as long as the androphores, forming a radial row opposite each gland; staminate flowers 30–35 per cyathium, 6–7 per fascicle; androphores 2–2.1 mm. long, glabrous; gynophore glabrous, long-exserted and reflexed at maturity; ovary glabrous, 3-lobed; styles 1.7–2 mm. long, entire; capsule spheroid with flattened base, roundly 3-lobed, glabrous, 1.6–1.9 mm. long; seeds ovoid-quadrangular, rotund-ovate radially, raphe slightly curved,



back semi-circular, facets covered with low irregular, smooth ridges, 1.4–1.6 mm. long, 1–1.1 mm. tangentially and radially, coat white and microreticulate.—PLATE 664B.

Central Valley of California (MAP 32). Other collections seen: CALIFORNIA. Tulare Co.: Yettem, *R. F. Hoover 1277* (G). Tehama Co.: 4 miles southeast of Vina, *R. F. Hoover 3722* (G).

35. *EUPHORBIA SERPYLLIFOLIA* Pers., Syn. Pl. **2**: 14. 1806 (as *serpillifolia*).

Annual; stems glabrous to sparsely villous, prostrate to erect, 5–35 cm. long; leaf-blades 3–14 mm. long, ovate, oblong, oblong-cuneate, obovate, to narrowly oblong, linear-oblong, or oblong-lanceolate, often falcate, glabrous to sparsely villous, usually serrulate at least toward the apex; stipules distinct, linear, entire or few-parted, mostly glabrous; cyathia solitary; involucre glabrous to villous, 0.8–1.2 mm. in diam., obconical-campanulate to campanulate; glands transversely oblong, 0.2–0.5 mm. long; appendages narrow, white, glabrous, entire to crenulate or even subdentate; sinus U-shaped, slightly depressed; staminate flowers 5–18 per cyathium; androphores glabrous, 1–1.2 mm. long; gynophore glabrous, soon exerted and reflexed; capsule sharply 3-angled, 1.5–1.9 mm. long, wider below the equator, mostly glabrous; seeds quadrangular but often turgid, angles rounded to sharp, 1–1.4 mm. long, broadly ovate to narrowly ovate radially, facets smooth to slightly punctate or even rugulose, coat clay white to brown.

KEY TO VARIETIES

Glabrous throughout; leaves 3–14 mm. long a. var. *genuina*.
More or less villous; leaves 3–7 mm. long b. var. *hirtula*.

35a. *E. SERPYLLIFOLIA* Pers., Syn. Pl. **2**: 14. 1806, var. *GENUINA* Boiss. in DC. Prod. **15** (**2**): 43. 1862; Thellung in Ascherson & Graebner, Syn. Mitteleur. Fl. **7**: 444. 1917. TYPE: "Hab. in Amer. calidiore" (Ge?, not seen; fragment M!; photographs of fragment G!, W!). An average member of the species, stems slightly winged. Millspaugh, Pittonia **2**: 82, Pl. 1, figs. 1–4. 1890, poor.—*Chamaesyce serpyllifolia* (Pers.) Small, Fl. Se. U. S., 712, 1333. 1903.

E. inaequilatera Sonder *sensu* Engelm. in Emory, U. S. & Mex. Bound. Surv. **2** (**1**): 187. 1859.

Anisophyllum novomexicanum Klotzsch & Garcke, Abh. Akad. Berlin, Phys. **1859**: 31. 1860. TYPE: "25th May–3rd Octbr. 1846–7. Rio del Norte, sandy soil, low river bank between rocks. Also: Santa Fe and Poñi Creek"¹. New Mexico, *Fendler 795* (B!; photographs G! W!). Stems very slightly winged; seeds slender, slightly punctately pitted. (This is not the extreme represented by *E. albicaulis*.)—*E. novomexicana* (Klotzsch & Garcke) L. C. Wheeler, Bull. So. Calif. Acad. Sci. **35**: 129. 1936.

¹ From Fendler's field notes (or copy?) at Gray Herbarium.

E. serpyllifolia Pers. β *consanguinea* Boiss. in DC. Prod. **15** (2): 43. 1862. TYPE: Nebraska, 1853-4, *F. V. Hayden* (Ge!; photographs G!, W!). Stems slightly winged; seeds slender, punctately pitted; leaves mostly broad. While the seeds and capsules approach those of *E. albicaulis* the leaves are broader. Jepson, Fl. W. Middle Calif., 262. 1901.—*E. consanguinea*, *E. subserrata*, and *E. notata* Engelm. ex Boiss., l. c. in synonymy.—*Chamaesyce consanguinea* (Engelm.) Lunell, Amer. Midl. Nat. **1**: 205. 1910, with parenthetical author but without basonym; description given. Millsp., Field Mus. Pub. Bot. **2**: 408. 1916, basonym given as "*Euphorbia consanguinea* Engelm. Mex. Bound. 187". In that place no such name appeared. The name was first published by Boissier in synonymy; see above.

E. neomexicana Greene, Bull. Calif. Acad. Sci. **2**: 56. 1886. TYPE: plains toward the Gila, New Mexico, Aug., 1880, *E. L. Greene* (Herb. Greeneanum 13713, not seen; photograph G!). Narrow-leaved, other characters not certain from picture.—*E. serpyllifolia* var. *neomexicana* (Greene) Millsp., Pittonia **2**: 84, Pl. 1, figs. 16-18. 1890.—*Chamaesyce neomexicana* (Greene) Lunell, Amer. Midl. Nat. **1**: 205. 1910 (June), with parenthetical author but without basonym; description given. Standley, Contr. U. S. Nat. Herb. **13**: 199, 227. 1910 (Oct.), with basonym.

E. sanguinea Hochst. & Steud. *sensu* Greene, Bull. Calif. Acad. **2**: 56. 1886.

E. occidentalis Drew, Bull. Torr. Bot. Club **16**: 152. 1889. TYPE: Hy-Am-Pum, Trinity County, California, July 23, 1888, *Chestnut & Drew* (C!; ISOTYPE J!).—*E. serpyllifolia* var. *occidentalis* (Drew) Jepson, Fl. W. Middle Calif., 262. 1901.—*Chamaesyce occidentalis* (Drew) Millsp., Field Mus. Pub. Bot. **2**: 410. 1916.

E. serpyllifolia var. *rugulosa* Engelm. ex Millsp., Pittonia **2**: 85, Pl. 1, fig. 19. 1890. TYPE: San Bernardino Valley, Aug., 1881, *S. B. & W. F. Parish 672* (F 99060!; photographs G!, W!; ISOTYPE M!). Jepson, Fl. W. Middle Calif., 262. 1901.—*E. rugulosa* (Engelm.) Greene, Fl. Franciscana, 92. 1891.—*Chamaesyce rugulosa* (Engelm.) Rydb., Bull. Torr. Bot. Club **33**: 145. 1906.

E. albicaulis Rydb., Mem. N. Y. Bot. Gard. **1**: 266. 1900. TYPE: cultivated place south of Potter, Cheyenne County, Nebraska, July 13, 1891, *P. A. Rydberg 356* (NY!; photographs G!, W!). Stems terete; leaves very narrow; seeds long and slender.—*Chamaesyce albicaulis* (Rydb.) Rydb., Bull. Torr. Bot. Club **33**: 145. 1906.

Chamaesyce aequata Lunell, Amer. Midl. Nat. **1**: 204. 1910. TYPE: on a railroad bank, Leeds, Benson County, North Dakota, July 12, 1909, *J. Lunell 694* (Mi 251952!; photographs G!, W!).

Chamaesyce aequata var. *claudicans* Lunell, op. cit., 205. TYPE: on a railroad bank, Leeds, Benson County, North Dakota, July 27, 1909, *J. Lunell 695* (Mi 251953!; photographs G!, W!).

Chamaesyce erecta Lunell, op. cit., 206. TYPE: on the margin of a slough, Leeds, Benson County, North Dakota, Aug. 19, 1909, *J. Lunell 696* (Mi 251955!; photographs G! W!). Erect, as is often the case with plants of this species in wet situations.—*C. aequata* var. *erecta* (Lunell) Lunell, op. cit., 4: 471. 1916.—PLATE 657C.

Southern British Columbia and Alberta, south to Mexico, east to western Texas, Colorado, Nebraska, Iowa, Minnesota, and northwestern Michigan (MAP 15). Said to be introduced into Europe. Representative specimens seen: ALBERTA: Rosebud Creek Valley, *Moodie 1199* in part (NY); Milk River, *Macoun 13702^b* (O). BRITISH COLUMBIA: Vancouver Island, Sproat Lake, Aug. 12, 1887, *Macoun* (NY). MICHIGAN. Keweenaw Co.: July, 1888, *O. A. Farwell 235* (NY); Phoenix, June, 1886, *Farwell* (Ph); Keweenaw Point, July 15, 1885, *Farwell* (NY). MINNESOTA. Brown Co.: Sleepy Eye, *Sheldon 917* (Mi). Clay Co.: south of Moorhead, *Ballard 2902* (Mi). Kittson Co.: Northcote, *Ballard 2682* (Mi); Kennedy, *Ballard 2734* (Mi). Lincoln Co.: Lake Benton, *Sheldon 1285* (Mi). Marshall Co.: Warren, *Ballard 2774* (Mi). Pipestone Co.: Pipestone, Aug. 11, 1925, *Peterson* (Mi). St. Louis Co.: Duluth, *Lakela 2118* (Mi). IOWA. Monona Co.: Turin, *Pammel* (F). MISSOURI. Jackson Co.: Courtney, *Bush 11824* (Mo). NORTH DAKOTA. Benson Co.: Leeds, *Lunell 639* (Mi). Cass Co.: Fargo, July, 1890, *Greene* (NY). SOUTH DAKOTA. Brookings Co.: near Brookings, June 26, 1894, *T. A. Williams* (W). Stanley Co.: Fort Pierre, June 21, 1853, *Hayden* (NY). Washington Co.: Sheep Mt., *Visher 2359* (NY). NEBRASKA. Cheyenne Co.: south of Potter, *Rydberg 356* (NY). OKLAHOMA. Cimarron Co.: 11 miles north of Boise City, *Stratton 448* (M). TEXAS. Brewster Co.: Alpine, *MacKensen 38* (F). El Paso Co.: El Paso, *M. E. Jones 4342* (I). Culberson Co.: Van Horn flats, July, 1900, *Eggert* (M). MONTANA. Lake Co.: Aug., 1924, *Swingle* (I). WYOMING. Platte Co.: Uva, *Nelson 2743* (NY). Sweetwater Co.: Granger, *Nelson 8133* (NY). COLORADO. Boulder Co.: near Boulder, *Tweedy 5057* (NY). Conejos Co.: Antomito, July 19, 1898, *Earle* (NY). Denver Co.: Denver, along the Platte River, *M. E. Jones 864* (I). Douglas Co.: Buffalo Creek, *Goodman 2004* (NY). El Paso Co.: Manitou, July 27, 1888, *Northrop* (NY). Fremont Co.: Canyon City, *T. S. Brandegee 316* (Ph). Gunnison Co.: Parlin, *B. H. Smith 81* (NY). Jefferson Co.: Golden City, July, 1879, *Gaillardon* (F). La Plata Co.: Durango, *Baker, Earle & Tracy 608* (NY). Larimer Co.: Ft. Collins, July 10, 1896, *Baker* (NY). Otero Co.: 15 miles northeast of La Junta, *Rollins 1874* (M, NY, W). Ouray Co.: Box Cañon west of Ouray, *Underwood & Selby 156* (NY). Pueblo Co.: Pueblo, *Coulter* (F). NEW MEXICO. Chaves Co.: 20 miles south of Roswell, *Earle 273* (NY). Doña Ana Co.: Organ Mts., *Wootton 425* (NY). Grant Co.: Fort

Bayard, *Blumer* 27 (NY). Lincoln Co.: near Gray, *Skehan* 71 (NY); White Mts., *Wooton* 608 (NY). Otero Co.: Cloudercroft, *Schulz* 301 (NY). Sandoval Co.: 4 miles north of Bernalillo, *Arsène* 18987 (F, US). San Miguel Co.: near Pecos, *Standley* 5054 (NY). Santa Fe Co.: Santa Fe Canyon, 9 miles east of Santa Fe, *Heller* 3845 (NY, O). Sierra Co.: 2 miles south of Hillsboro, *Metcalf* 1298 (NY). IDAHO. Ada Co.: Boise, *Clark* 144 (F). Bonner Co.: Lake Pend d'Oreille, Aug. 1, 1889, *Greene* (F). Shoshone Co.: Coeur d'Alene Mts., *Leiberg* 1317 (NY). Canyon Co.: Falk's Store, *Macbride* 724 (NY). Kootenai Co.: Lake Coeur d'Alene, *Epling & Hauch* 10008 (M). Gem Co.: Sweet, *Macbride* 1629 (NY). UTAH. Juab Co.: Troutcreek, *Becraft & Starr* 385 (I); 6 miles south of Callao, *Maguire & Richards* 2685 (I). Beaver Co.: Beaver Canyon, *Garrett* R2708 (NY). Carbon Co.: Price, *M. E. Jones* 5467 (NY). NEVADA. Elko Co.: near Blaine postoffice, *Heller* 11118 (NY, Ph); near Fort Halleck, *Heller* 9275 (NY). Ormsby Co.: Eagle Valley, *Baker* 1274 (NY). Washoe Co.: Spanish Springs Valley, *Kennedy* 1945 (F, NY). ARIZONA. Mohave Co.: Peach Spring, *Lemmon* 39 (NY). Coconino Co.: Walker Lake, San Francisco Mts., *Knowlton* 159 (F, US); Flagstaff, *M. E. Jones* 3998 (I, O, US). Yavapai Co.: Clarksdale, *W. W. Jones* 288 (G); 4 miles west of Prescott, *Wolf* 2321 (G). Navajo Co.: Lakeside, White Mts., *Harrison* 5517 (US). Apache Co.: north end of the Carrizo Mts., Navajo Indian Reservation, *Standley* 7499 (US). Graham Co.: Solomonville, *Goodding* 519 (G, NY, US). Gila Co.: Tonto Basin, *Toumey* 266 (US). Cochise Co.: near Fort Huachuca, *Wilcox* 328 (US); Portal, *Eggleston* 10274 (US). Santa Cruz Co.: near Nogales, *Peebles, Harrison & Kearney* 5565 (US). WASHINGTON. Klickitat Co.: North Dalles, *Thompson* 11122 (NY). Okanogan Co.: Loomiston, *Elmer* 602 (NY). Whitman Co.: Pullman, *Elmer* 200 (NY). OREGON. Curry Co.: Rogue River bar at ferry, *Peck* 13656 (Ph). Klamath Co.: Fort Klamath, *Peck* 9562 (NY). Multnomah Co.: University Park, *Sheldon* S.11309 (NY). Wallowa Co.: Hurricane Creek, *Sheldon* 8630 (NY); Wallowa Mts., *Constance & Jacobs* 1418 (NY). Wasco Co.: The Dalles, *Thompson* 11891 (NY, W). Washington Co.: Forest Grove, July 2, 1894, *Lloyd* (NY). CALIFORNIA. Humboldt Co.: Trinity River Valley near the South Fork, *Tracy* 6555 (J). Mendocino Co.: Covelo Ranger Station, *Crone-miller* 663 (J). Lake Co.: near Clear Lake, *J. Torrey* 478 (NY). Sonoma Co.: Santa Rosa Creek east of Santa Rosa, *Heller* 5802 (M, NY, Ph). Napa Co.: Napa River near St. Helena, *Jepson* 13934 (J). Solano Co.: northeast of Elmira, *Jepson* 12379 (J). San Francisco Co.: San Francisco, *Bolander* 186 (NY). San Mateo Co.: Crystal Lake, *Abrams* 2990 (NY). Santa Clara Co.: Stanford University, *Baker* 195 (NY). Monterey Co.: Carmel,

1905, *Clemens* (NY). Siskiyou Co.: Mt. Shasta, *Brown 541* (NY). Shasta Co.: near Ash Creek, Shasta Forest, *Dayton 486* (NY). Butte Co.: 5 miles east of Chico, *Heller 13815* (F, NY). Colusa Co.: Indian Creek about 7 miles north of Leesville, *Bracelin 564* (I, NY). Sacramento Co.: Sacramento, *M. E. Jones 2855* (I). San Joaquin Co.: Lathrop, *Walker 910* (J). Alameda Co.: Berkeley, *Michener & Bioletti 6189* (M, NY). Modoc Co.: Egg Lake, July 25, 1893, *Baker* (J, NY). Lassen Co.: Beckwith Pass, *Jepson 7762* (J). Plumas Co.: Bucks Valley, *Jepson 10643* (J). Nevada Co.: lower end of Donner Lake, *Heller 6935* (NY). Placer Co.: Yuba River below Cisco, *Heller 13303* (NY, Ph). El Dorado Co.: near Echo Camp on Lincoln Highway, *Heller 12524* (NY, Ph, W). Amador Co.: Ione, *Braunton 1178* (NY). Calaveras Co.: Dorrington, *Jepson 10112* (J). Tuolumne Co.: Deadman Creek, *Jepson 6559* (J). Mariposa Co.: Yosemite Valley, *Abrams 4652* (NY). Madera Co.: Fresno Big Trees, *Jepson 15985* (J). Fresno Co.: Pine Ridge, *Hall & Chandler 345* (NY). Los Angeles Co.: Los Angeles, *Abrams 4178* (M, NY); Mescal Creek, San Antonio Mts., *Munz 7697* (NY); Canyon south of Avalon, Santa Catalina Island, *Pendleton 1398* (J). Orange Co.: Newport, May, 1908, *King* (J). San Bernardino Co.: Cucamonga, *Abrams 2661* (M, NY, Ph); Mill Creek, San Bernardino Mts., *Munz 7577* (NY); 5 miles south of Barnwell, eastern Mohave Desert, *Munz 13836* (W). San Diego Co.: San Diego, *Spencer 964* (NY). MEXICO: BAJA CALIFORNIA: northwest of La Encantada, Sierra San Pedro Mártir, *Wiggins & Demaree 5020* (US). CHIHUAHUA: plains near Chihuahua, *Pringle 286* (Ph, US). COAHUILA: Jimulco, *Pringle 81* (US). DURANGO: Durango, Apr.—Nov., 1896, *Ed. Palmer 899* (US). QUERÉTARO: near San Juan del Rio, *Rose, Painter & Rose 9611* (US).

Bush's collection of this species from Missouri is not necessarily to be taken as evidence that the species grows there naturally. From this and several other collections of *Euphorbia* made by Bush at Courtney, his home town, I have been led to wonder if he were not careless with the sweepings from his herbarium and consequently found many waifs in his backyard.

Euphorbia minuta Philippi appears doubtfully distinct from *E. serpyllifolia*.

It is quite possible that the plants here called *E. serpyllifolia* var. *genuina* could be divided into three varieties: (1) The typical with broad leaves and seeds; (2) slender-seeded, narrow-leaved, ranging from Nebraska to New Mexico and perhaps westward in arid regions; (3) elliptic-leaved and with numerous staminate

flowers and subdentate appendages, in the Central Valley of California.

35b. *E. SERPYLLIFOLIA* Pers. var. *HIRTULA* (Engelm.) L. C. Wheeler, Proc. Biol. Soc. Wash. **53**: 11. 1940; based on *E. hirtula* Engelm. ex S. Wats., Bot. Calif. **2**: 74. 1880. TYPE: Talley's, Cuyamaca Mountains, San Diego County, California, 1875, *Ed. Palmer 451* (G!; ISOTYPE M!). Jepson, Man. Fl. Pl. Calif., 599. 1925; Munz, Man. So. Calif. Bot., 287. 1935.—*Chamaesyce hirtula* (Engelm.) Millsp., Field Mus. Pub. Bot. **2**: 409. 1916; Davidson & Moxley, Fl. So. Calif., 219. 1923.

Mostly in the pine belt, central Sierra Nevada, south Coast Ranges, San Bernardino, San Jacinto, and Cuyamaca Mountains, California, south to northern Lower California (MAP 14). Representative specimens seen: CALIFORNIA. Nevada Co.: Bear Valley, *Jepson 13924* (J). Mariposa Co.: Cedar Brook, Sierra Nevada, *Jepson 15964* (J); Agua Fria, Mariposa, *Congdon 75* (G). Monterey Co.: Santa Lucia Mountains, *Vasey 576* (G); along San Antonio River between Jolon and Santa Lucia Ranger Stations, *Mason 5789* (G); bridge over Salinas River at Bradley, *Mason 5506* (G); San Miguelito Rancho, Jolon, Santa Lucia Mountains, *Jepson 1650* (G); Jolon, Sept. 22, 1894, *Eastwood* (G); Jolon, Aug., 1885, *T. S. Brandegee* (G). San Bernardino Co.: Bear Valley, margins of Pine Lake, *Abrams 2952* (G); San Bernardino Mountains, 1880, *Nevin* (G). Riverside Co.: Idyllwild, San Jacinto Mountains, June 16, 1921, *Spencer* (O); Idyllwild, San Jacinto Mountains, June 26, 1920, *Spencer* (O); San Jacinto Mountains, *Spencer 970* (G). San Diego Co.: Pine Valley, June 10, 1917, *Spencer* (O); Julian, *Cleveland 904* (G); San Diego, 1874, *Cleveland* (G, M); near Julian, *Abrams 3789* (G). MEXICO: LOWER CALIFORNIA, San Vincente Rancho, July 8, 1896, *T. S. Brandegee* (J).

The designation of the specimen at Gray Herbarium as type seems necessary in view of the following evidence: Two collections are cited, "Near San Diego (*Cleveland*); at Talley's in the Cuyamaca Mountains, *Palmer*." Engelmann, on the sheet in his herbarium, questioned the reference of the Cleveland collection to *E. hirtula*. That means that Engelmann considered the name associated permanently with the Palmer collection. No sheet has been found at Missouri Botanical Garden which can appropriately be taken as type. The isotype at M was acquired after Engelmann's death by purchase of a private herbarium. Engelmann's Latin diagnosis was sent to Watson and now reposes in the folder of *E. hirtula*. Watson translated the description into English and published it for Engelmann.

Jepson, Fl. Calif. **2**: 426. 1936, took the Cleveland collection as type but that was done without examining the actual specimens. Jepson has confused certain specimens of *E. supina* (as *E. maculata*) with this species, e. g., *Jepson 10,042*.

At US there is a collection by *Ed. Palmer* in 1869 bearing only the locality "Sonora". The label is copied. In view of the curiously restricted range of this species it is fairly certain that this locality is erroneous.

36. EUPHORBIA GLYPTOSPERMA Engelm. in Emory, U. S. & Mex. Bound. Surv. **2** (1): 187. 1859. TYPE: Fort Kearney on the Platte River, Kearney County, Nebraska, July, 1856, *H. Engelmann* (M 144635!; photographs G!, W!; ISOTYPE? G!). (See RHODORA **39**: 496. 1937 for discussion of this choice.) An average member of the entity. Boiss., Icon. Euph., t. 18. 1866, poor.—*Chamaesyce glyptosperma* (Engelm.) Small. Fl. Se. U. S., 712, 1333. 1903.

E. glyptosperma Engelm. var. *tenerrima* Engelm. in Emory, U. S. & Mex. Bound. Surv. **2** (1): 187. 1859. TYPE: pebbly bars of the Nueces River, Texas, May 25, 1851, *C. Wright 1853* (M 144673!; photographs G!, W!; ISOTYPES G!, NY!). A plant with small leaves, a character which shows no geographical correlation, completely intergrades and is probably more ecological than genetical.

E. glyptosperma Engelm. var. *pubescens* Boiss. in DC. Prod. **15** (2): 48. 1862. TYPE: bord du Mississippi, Illinois, *Riehl 472* (Ge, not seen; fragment F!). A mixture of typical *E. glyptosperma* with *E. humistrata*. The first element is taken as type.—*Chamaesyce glyptosperma pubescens* (Boiss.) Millsp., West Va. Geol. Surv. **5** (A): 294. 1913 (Living Fl. W. Va.).

E. Greenii Millsp., Pittonia **2**: 88. 1890. TYPE: Beaver Canyon, Idaho, July 30, 1889, *E. L. Greene* (F 196395!, photographs G!, W!). Entirely typical and later abandoned by its author.—*Chamaesyce Greenei* (Millsp.) Rydb., Fl. Rocky Mts., 544, 1063. 1917.

Chamaesyce glyptosperma Engelm. var. *integrata* Lunell, Amer. Midl. Nat. **3**: 142. 1913. TYPE: Leeds, Benson County, North Dakota, Aug. 20, 1906, *J. Lunell 693* (Mi 251964!, photographs G!, W!). Entire leaves are by no means unusual in this species and the character is too variable to warrant recognition.

Annual, glabrous; stems mostly prostrate, sometimes ascending or erect, 5–33 cm. long, 0.5–1.5 mm. thick, internodes up to 3 cm. long, average ca. 1 cm.; leaf-blades prevailingly oblong to narrowly oblong, often subfalcate, but varying to ovate and ovate-oblong in the lower, 3–15 mm. long, base strongly inequilateral, margin often serrulate especially at the apex and on the

lower margin; petioles ca. 1 mm. long; stipules subulate, long-attenuate into a filiform tip, up to 2 mm. long, glabrous, with a few linear, erect lateral divisions below; peduncles 0.5–2 mm. long; cyathia solitary at the nodes; involucre obconical, tapering to the peduncle, 0.6–0.9 mm. in diam., glabrous outside, glabrous inside except on lower margin of lobes; lobes triangular, shortly attenuate, slightly exceeding the glands; glands transversely elliptical to oblong, 0.15–0.4 mm. long, mostly depressed in the middle; appendages white, glabrous, 1–1½ times as wide as the glands, bluntly crenulate-dentate to subentire; fifth gland nearly glabrous, of 1 or sometimes 2 filiform segments, equaling or slightly exceeding the lobes; sinus narrowly U-shaped, slightly depressed; bracteoles reduced to one filiform segment adnate below to the involucre opposite each gland, free portion entire to deeply parted, about equaling the androphores, bearing a few minute hairs above, or glabrous; staminate flowers 1–5, but most commonly 4, per cyathium; androphores 0.9–1 mm. long, glabrous; gynophore glabrous, soon exerted and usually reflexed; ovary glabrous, subacutely 3-lobed; styles spreading, becoming erect only in age, the tips erect and slightly clavate, ca. 0.3 mm. long; ca. ⅓ bifid; capsule glabrous, sharply 3-angled, wider below the equator, 1.4–1.7 mm. long; seeds sharply quadrangular, 1–1.3 mm. long, 0.7–0.9 mm. tangentially and radially, radially ovate, base truncate, ventral facets concave, dorsal convex, both traversed by 3 to 4 rounded transverse ridges passing more or less through the angles, or sometimes the ridges very faint, coat microreticulate, white to tan.—PLATE 660B.

New Brunswick and Quebec, west to British Columbia, south to Indiana, Missouri, and Texas, northwest from New Mexico to northern California and Oregon (MAP 24). Representative specimens seen: NEW BRUNSWICK: Carleton Co.: yard of the Canadian Pacific railroad, Hartland, *Fernald 1981* (G). QUEBEC: Pontiac Co.: Chichester, Vallée de l'Ottawa, *Marie-Victorin, Rolland-Germain & Meilleur 44015* (G). Lake Deschênes above Aylmer, *Macoun 87830* (G). ONTARIO: east of London, Sept. 23, 1911, *Dearness* (G, NY); Stilleville, *Macoun 87829* (G); Amherstburg, *Macoun 88092* (G); Thunder Bay District, near Jack Fish, *Pease & Bean 23435* (G). SASKATCHEWAN: along railroad near Saskatoon, *Macoun & Herriot 76824* (NY); Carlton House, *Richardson* (M). ALBERTA: Fort Saskatchewan, *Turner 66* (W); Calgary, *Macoun 24720* (NY); Rosedale, Rosebud Creek Valley, *Moodie 1199* (G, M). BRITISH COLUMBIA: Lake Osoyoos, *Macoun 79546* (NY); flood plain of Columbia at Beavermouth, *Shaw 1146* (G, NY); Vancouver Island, Aug. 15, 1921, *Carter* (G). MAINE. Aroostook Co.: Fort Fairfield, *Fernald 1980* (G, NE). Oxford Co.: Rumford, Aug. 1, 1890, *Parlin* (NE). NEW HAMPSHIRE. Coös Co.: Randolph, *Pease 18138* (NE); Carroll at

Carroll Station, *Pease 16591* (NE). VERMONT. Franklin Co.: Swanton, *Blake 3158* (NE). Chittenden Co.: Burlington, Aug. 7, 1921, *Knowlton* (G). Windsor Co.: Mt. Tom, Woodstock, Aug. 3, 1933, *Kittredge* (G). NEW YORK. Washington Co.: northeast of Tripoli, Sept. 19, 1915, *Burnham* (G, NY). Albany Co.: Albany, *House 25024* (NY). Suffolk Co.: Fishers Island, Aug. 11, 1895, *Graves* (NY). MICHIGAN. Schoolcraft Co.: near Manistique, *Dodge 201* (NY). Emmet Co.: Pellston, *Deam 28949A* (Deam). Dickinson Co.: south of Iron Mountain, *Fernald & Pease 3407* (G). Kalamazoo Co.: 6 miles west of Schoolcraft, *Hanes 1886* (G). INDIANA. Steuben Co.: Bass Lake, 5 miles west of Angola, *Deam 55400* (Deam, G). Elkhart Co.: 3 miles northeast of Bristol, *Deam 57370* (Deam, G). Newton Co.: Beaver Lake bed, 3 miles south of Lake Village, *Deam 56707* (Deam). WISCONSIN. Brown Co.: Green Bay, Aug. 4, 1887, *Schuette* (NY). Waupaca Co.: Lake Mendota, Marion, Aug. 21, 1893, *Sudworth* (NY). Trempealeau Co.: Brady Peak, 1 mile west of Trempealeau, *Hermann 8944* (NY). La Crosse Co.: La Crosse, *Pammel 620* (G). Dane Co.: Madison, Aug. 13, 1889, *Trelease* (M). Polk Co.: Osceola, Aug. 8, 1900, *Baker* (G). Pierce Co.: Prescott, *Fassett 10258* (G). ILLINOIS. Cook Co.: on ballast, West Chicago, *Umbach 2313* (G). Lee Co.: Dixon, *Vasey* (G). Peoria Co.: Peoria, July, 1891, *McDonald* (G). St. Clair Co.: St. Louis, Sept., 1886, *Eggert* (NY). MINNESOTA. Anoka Co.: *Cooper 111* (Mi). Becker Co.: Detroit Lakes, *O. A. Stevens 290* (G). Brown Co.: Sleepy Eye, *Sheldon 5966* (Mi). Carver Co.: Chaska, *Ballard 161* (Mi). Chisago Co.: Center City, *Taylor 1568* (Mi). Clay Co.: Muskoda, *Ballard 3051* (Mi). Chippewa Co.: Montevideo, Aug. 28, 1893, *Moyer* (Mi). Clearwater Co.: near Squaw Lake, *Moyle 850* (Deam, NY). Crow Co.: Brainerd, *Mell 249* (M, NY). Houston Co.: Jefferson, *W. A. Wheeler 434* (Mi). Hennepin Co.: Minneapolis, *Sheldon 1658* (Mi). Kandiyohi Co.: Spicer, *Frost 347* (Mi). Kittson Co.: Humboldt, *Ballard 2604* (Mi). Lincoln Co.: Lake Benton, *Sheldon 1557* (Mi). Morrison Co.: *Sandberg 888* (Mi). Ottertail Co.: Clitherall, July, 1897, *Campbell* (Mi). Pipestone Co.: Pipestone City, 1892, *Menzel* (Mi). Pope Co.: Glenwood, *Taylor 784* (Mi). St. Louis Co.: tree nursery bed, Duluth, *Lakela 1563* (NY). Scott Co.: Cleary's Lake, *Ballard 527* (Mi). Winona Co.: July, 1886, *Holzinger* (Mi). IOWA. Boone Co.: Ledges, *Pammel & Ball 191* (G, NY). Black Hawk Co.: *Burk 904* (M). Green Co.: Rippey, July 31, 1867, *Allen* (G). Woodbury Co.: Sioux City, *Pammel 193* (G, NY). Humboldt Co.: Dakota City, *Pammel 190* (G, NY). MISSOURI. Jackson Co.: Courtney, *Bush 500* (NY). NORTH DAKOTA. Renville Co.: Pleasant, July 28, 1912, *Lunell* (NY). Towner Co.: Maza, May 10, 1900, *Kildahl* (Mi). Ramsey Co.: Devil's Lake, *Lunell 692* (Mi). Oliver Co.:

Ft. Clark, upper river valley on old Indian Lodge site, *O. A. Stevens 384* (F, G). Billings Co.: Medora, Aug. 12, 1896, *Brannon* (Mi). Stark Co.: Dickinson, *Bergman 690* (O). Richland Co.: Swan Lake, Hankinson, *Metcalf 156* (NY). SOUTH DAKOTA. Walworth Co.: Mobridge, Missouri River bottom, *Moyer 687* (NY). Potter Co.: Forest City, June 9, 1892, *Griffith & Schlosse* (O). Spink Co.: near Redfield, *Ricksecker 81* (O). Kingsbury Co.: Iroquois, Aug., 1892, *Thornber* (G). Meade Co.: Faith, *Moyer 205* (NY). Lawrence Co.: Deadwood, *Rydberg 77* (G, NY). Fall River Co.: Hot Springs, Black Hills, *Rydberg 992* (G, NY). Washabaugh Co.: Bear Creek, *Visher 2022* (NY). Mellette Co.: White River, July 5, 1896, *Wallace* (NY). Pennington Co.: 5 miles south of Scenic, *Hayward 569* (NY). Todd Co.: Rosebud Creek, *Wallace 121* (NY). NEBRASKA. Cherry Co.: Snake River Hardlands, *Tolstead 621* (G). Hooker Co.: on Middle Loup River, near Mullen, *Rydberg 1373* (G, NY). Thomas Co.: on Middle Loup River, *Rydberg 1742* (G, NY). Scott's Bluff Co.: Kuoa Valley, *Rydberg 355* (NY). Custer Co.: Broken Bow, *Webber 7* (NY). Deuel Co.: sand-draws, *Rydberg 197* (NY). Lancaster Co.: Lancaster, *Clements 2587* (NY). Dawes Co.: 10 miles south of Chadron, *Tolstead 806* (G). Franklin Co.: Franklin, *Laybourn 48* (M). Kearney Co.: Minden, July 29, 1930, *Hapeman* (O). Webster Co.: Red Cloud, *Bates 2988* (G). KANSAS. Comanche Co.: west of Protection, *E. J. Palmer 41860* (NY). Ellis Co.: near Hays, *Rydberg & Imler 1252* (NY). Geary Co.: Ft. Riley, *Gayle 576* (NY). Graham Co.: Bogue, *Imler 65* (NY). Grant Co.: Ulysses, *Thompson 2* (G, NY). Kiowa Co.: Belvidere, Sept. 5, 1898, *White* (NY). Osborne Co.: south Fork Solomon River, 5 miles of Osborne City, *Shear 183* (G). Riley Co.: Prairie, *Norton 470* (G, NY). Wyandotte Co.: Quindaro, Aug. 30, 1896, *Mackenzie* (NY). OKLAHOMA. Alfalfa Co.: near Cherokee, *G. W. Stevens 1779* (G, M). Comanche Co.: Fort Sill, July 20, 1891, *Sheldon* (M). Harmon Co.: Hollis, *G. W. Stevens 1055* (G, M). Kingfisher Co.: Huntsville, May 26, 1896, *L. A. Blankinship* (G, O). Logan Co.: near Guthrie, *G. W. Stevens 3277* (G). Murray Co.: Davis, Arbuckle Mountains, *Demaree 12827* (NY). Muskogee Co.: Arkansas Junction, *Bush 533* (G, NY). Woods Co.: near Fairvalley, *G. W. Stevens 1641* (G, M, NY). TEXAS. Brown Co.: *Reverchon 765* (G). Crane Co.: 11 miles east of Grand Falls, *Cory 27315* (G). Dallas Co.: Dallas, June, 1874, *Reverchon* (G). El Paso Co.: El Paso, *M. E. Jones 4195* (NY). Hall Co.: Estelline, *Reverchon 3789* (G). Menard Co.: Menard, *Cory 24700* (G). Nueces Co.: near Corpus Christi, Mar., 1894, *Heller* (NY). Presidio Co.: Marfa, *Havard 16* (M). Randall Co.: Palo Duro Canyon, *Ball 1257* (NY). Reeves Co.: Verhalen, *Cory 1956* (G). Tarrant Co.: low woods, *Ruth 304* (NY). Taylor Co.: Abilene, *Tracy 7861* (G,

NY). Tom Green Co.: 3 miles east of San Angelo, *Cory* 4879 (G). Victoria Co.: Guadalupe, 105 miles southwest of San Antonio, 1879, *Ed. Palmer* 1201 (G). Wilbarger Co.: Chillicothe, *Ball* 959 (NY). Wilson Co.: Sutherland Springs, 1879, *Ed. Palmer* 2047 (G). MONTANA. Lewis and Clark Co.: near Helena, Aug. 12, 1892, *Kelsey* (NY). Park Co.: Suksdorf Gulch, 9 miles west of Wilsall, *Suksdorf* 86 (G). Yellowstone Co.: Custer, *J. W. Blankinship* 116 (M). WYOMING. Teton Co.: Spread Creek, *Tweedy* 368 (NY). Crook Co.: Devil's Tower, Little Missouri Butte, Aug. 17, 1897, *Griffiths & Carter* (NY). Johnson Co.: South Fork of Powder River, *Goodding* 257 (G, NY). Converse Co.: Orin Junction, *Nelson* 2573 (G, NY). Yellowstone National Park, *G. N. Jones* 5285 (NY). COLORADO. Weld Co.: New Windsor, *Osterhout* 2369 (NY). Larimer Co.: Ft. Collins, July 9, 1896, *Baker* (M, NY). Boulder Co.: near Boulder, *Tweedy* 5058 (NY). Denver Co.: near Denver, Sept. 25, 1916, *Rehder* (G). El Paso Co.: Manitou, *F. E. & E. S. Clements* 25 (M, NY). Fremont Co.: Canyon City, *Clements* 276 (NY). Pueblo Co.: Pueblo, *Baker, Earle & Tracy* 5 (G, NY, O). Montrose Co.: Naturita, *Payson* 510 (G, Ph). Ouray Co.: near Ouray, *Underwood & Selby* 240 (NY). Archuleta Co.: Arboles, *Baker* 453 (G). UTAH. Box Elder Co.: Brigham, *Zundel* 242 (NY). Cache Co.: 3 miles northeast of Logan, *Maguire* 208 (I). Morgan Co.: Peterson, Weber River, Devil's Gate, *Pammel & Blackwood* 3911 (G, M). Salt Lake Co.: Salt Lake City, *M. E. Jones* 1024 (I, NY). Grand Co.: Moab, *Christinsen* 10039 (NY). Uintah Co.: near Jensen, *Peirson* 12599 (G). San Juan Co.: near Bluff, along San Juan River, *Rydberg & Garrett* 9897 (NY). NEVADA, 1872, *Wheeler* (NY). NEW MEXICO. Rio Arriba Co.: Española on the Rio Grande above Santa Fe, Sept. 7, 1881, *Engelmann* (M). Guadalupe-San Miguel Co.: between Anton Chico & Las Vegas, *Rose & Fitch* 17620 (NY). Doña Ana Co.: Doña Ana, *C. Wright* 1855 (G, NY). ARIZONA. Apache Co.: Navajo Indian Reservation, north end of Carrizo Mountains, *Standley* 7371 (US). Navajo Co.: Holbrook, Oct. 4, 1897, *Zuck* (US). Coconino Co.: Houserock, *Eastwood & Howell* 6473 (G). IDAHO. Nez Perces Co.: Lake Waha, *Heller* 3343 (NY). OREGON. Multnomah Co.: Hayden Island, *Thompson* 3749 (M). Wasco Co.: The Dalles of the Columbia, Aug. 2, 1880, *G. Engelmann* (M). Wallowa Co.: Horse Creek Canyon, *Sheldon* 8114 (NY). Grant Co.: 4 miles east of John Day, *Peck* 18612 (NY). WASHINGTON. Okanogan Co.: Palmer Lake, Loomiston, *Elmer* 602 (M). Chelan Co.: Peshastin, Wenatchee Valley, *Sandberg & Leiberg* 472 (G, NY). Stevens Co.: Marcus, *Kreager* 461 (G, NY). Pierce Co.: Murray, American Lake, *Muenschler* 5103 (G). Walla Walla Co.: Waitsburg, *Horner* 1161 (G). Klickitat Co.: White Salmon, *Suksdorf* 489 (G).

This species ranges the farthest north of any species of *Euphorbia* in North America. It nearly reaches 54° north latitude at Fort Saskatchewan, Alberta. On the other extreme it ranges south to the Gulf of Mexico in Texas.

I was under the impression that I had seen specimens from California in some of the herbaria in that state. None of my notes confirm this and only one Californian specimen has been found in the more than three hundred collections examined and that had atypical seeds and foliage: Shasta Co., along the Sacramento River, but in dry ground, near Redding, Sept. 4, 1889, *Greene* (F). Plants nearly intermediate between *E. glyptosperma* and *E. serpyllifolia* occur on the southern slopes of Mt. Shasta.

The plants referred to *E. glyptosperma* by Jepson, *Man. Fl. Pl. Calif.*, 599. 1925, were probably *E. Abramsiana*. The fact that *E. glyptosperma* does not appear in Jepson, *Fl. Calif.* 2: —. 1936, supports this supposition.

There are two other collections sufficiently different to merit comment. *Eastwood & Howell 6473* from Arizona has unusually narrow seeds, thus approaching *E. Abramsiana*. *Suksdorf 86* from Montana has unusually large seeds.

37. EUPHORBIA ABRAMSIANA L. C. Wheeler, *Bull. So. Calif. Acad. Sci.* 33: 109. 1934. TYPE: Heber, Imperial Valley, Imperial County, California, June, 1904, *LeRoy Abrams 4097* (D33555!; ISOTYPES G!, M!, Ph!). *E. pediculifera* Engelm. var. *Abramsiana* (L. C. Wh.) Ewan in Jepson, *Fl. Calif.* 2: 427. 1936.

Chamaesyce saltonensis Millsp. in Parish, *Cat. Pl. Salton Sink*, 6. 1913 (preprint from *Carn. Inst. Wash. Pub.* 193: 110. 1914); nomen nudum based on *Parish 8302 & 8305 q. v. infra*.

Annual; stems prostrate or rarely ascending, few to several, finely pubescent to rarely completely glabrous, slender (mostly not over 1 mm. thick), to 25 cm. long, internodes to 3 cm. long but mostly much shorter, gradually shortening upward; leaf-blades shortly puberulent to glabrous, 2–12 mm. long, ovate-oblong, oblong, elliptic-oblong, or the uppermost sometimes elliptic-lanceolate, base inequilateral, apex obtuse, margin often strongly revolute at least on drying, sometimes some of the larger serrulate at the apex and on the lower margin; petioles ca. 1 mm. long; stipules distinct, less than 0.5 mm. long, the upper usually 2–3-parted, the lower several-parted, with a few cilia or glabrous; peduncles to 1 mm. long, glabrous; cyathia solitary at the nodes but mostly congested in groups of 5 to 10 on very short leafy lateral branches; involucre 0.6–0.7 mm. in diam., glabrous outside, glabrous inside except on the lobes, obconical, tapering

to the peduncle; proximal lobes greatly exceeding the glands, each deeply parted into 2–4 slender glabrous segments, the distal lobes exceeding the glands, mostly parted into 2 slender glabrous segments, all the lobes with a few hairs inside at the base; fifth gland equaling the glands, filiform, glabrous; sinus narrowly V-shaped, little depressed, making the fifth gland appear somewhat as one of the divisions of the lobes; glands transversely elliptic to subcircular, 0.15–0.2 mm. long; appendages mostly wider than the glands, white, glabrous, entire or slightly two-lobed; bracteoles reduced to one slender segment opposite each gland, adnate to the involucre below, free portion of one or two slenderly filiform segments about equaling the androphores, with a few short hairs; staminate flowers 3–5 per cyathium; androphores glabrous, 0.7–0.9 mm. long; gynophore glabrous, exerted but often not reflexed; ovary glabrous, 3-lobed; styles bifid ca. halfway, glabrous, clavate, ca. 0.3 mm. long, rotately spreading but the tips slightly ascending; capsule glabrous, rotundly ellipsoid-oblong, 1.3–1.7 mm. long, subacutely 3-angled; seeds sharply quadrangular, 1–1.4 mm. long, 0.6–0.7 mm. tangentially, ca. 0.6 mm. radially, narrowly ovate to oblong-ovate radially, base truncate, ventral facets slightly concave, dorsal facets plane or slightly convex, all with 4–6 irregular transverse rounded ridges slightly including the angles, coat white, microreticulate.—
PLATE 660D.

Colorado Desert, California, southern Arizona, south to northern Sinaloa (MAP 1). Representative specimens seen: CALIFORNIA. Imperial Co.: streets of Brawley, about 15 feet below sea-level, *Parish 8305* (F, G, J); old beach east of Calexico, about 2 feet below sea-level, *Parish 8302* (G, J, NY). ARIZONA. Yavapai Co.: Fort Verde, *MacDougal 511* (US); Fort Verde, *Mearns 155* (NY). Maricopa Co.: 20 miles south of Gila Bend, *Harrison, Kearney & Fulton 7991* (A, US). Pinal Co.: Sacaton, *Peebles, Harrison & Kearney 83* (US), *Peebles 10595* (US); weed in greenhouse, experiment farm, Sacaton, *Peebles 5834* (A). Pima Co.: on range reserve, Wilmot, *Thornber 342* (M, US); among rocks, Papago Reservation, *Harrison & Kearney 7993* (A, US). Co.?: “Mesas,” June 23, 1881, *Pringle* (NY, US). MEXICO: SONORA: Guaymas, low sandy places, Sept., 1887, *Ed. Palmer 186* (G, US); Guaymas, high gravelly ridges, Sept., 1887, *Ed. Palmer 187* in part (G, US). SINALOA: dry hills, Fuerte, *Rose, Standley & Russell 13541* (US). For citation of additional specimens see Bull. So. Calif. Acad. **33**: 110. 1934.

The specimens from Fort Verde are atypical in that they have coarser stems with coarser pubescence, and seeds approaching those of *E. glyptosperma* which is the closest relative of this species.

38. *EUPHORBIA theriaca* sp. nov. Annua, glabra; caulibus prostratis vel suberectis; laminis foliorum ovatis, obovatis, vel ovato-orbicularibus, 3–5 mm. longis, integris; petiolis 0.7–1 mm. longis; cyathiis solitariis; involucris turbinato-campanulatis, diametro 1.3–1.4 mm.; glandulis transverse ovalibus vel oblongis, 0.6–0.8 mm. longis; appendiculis nullis vel rudimentis tantum; floribus masculis 30–36 per cyathium; stylis bifidis, 0.3–0.4 mm. longis; capsulis glabris, subacute 3-angulatis, 1.4–1.6 mm. longis; seminibus acute quadrangularibus, 1–1.2 mm. longis, in quoque latere 2–3 rugis transversis praeditis, radialiter ovato-acutis, basi truncatis.

Glabrous annual; stems prostrate to suberect, 0.5–1.4 mm. thick, internodes up to 2 cm. long but mostly about 1 cm. long; leaf-blades ovate or obovate to ovate-orbicular, 3–5 mm. long, margin entire, apex rounded or sometimes emarginate; petioles 0.7–1 mm. long; stipules 0.7–1 mm. long, ventral mostly united, dorsal sometimes united, linear-subulate, mostly entire, margin sparsely ciliate; cyathia solitary at the nodes; peduncles 0.3–0.7 mm. long; involucre turbinate-campanulate, 1.3–1.4 mm. in diam., 1.7–2 mm. long, glabrous outside, with short hairs at the summit and beneath the glands inside; lobes triangular, acuminate to obtuse, slightly exceeding the glands, with short hairs on the margin and inner face; glands 0.6–0.7 mm. long, transversely oval to oblong; appendages absent or a mere linear swelling beneath gland; fifth gland ca. $\frac{2}{3}$ as long as the lobes, linear; sinus U-shaped, not depressed; bracteoles forming a radial partition adnate halfway up the involucre below each gland, parted into few to several shortly hairy linear segments above; staminate flowers 6–8 per fascicle, 31–36 per cyathium; androphores 1.4–1.7 mm. long, glabrous or very rarely with a few short hairs; gynophore glabrous, soon exerted and reflexed; ovary glabrous, strongly but roundly 3-lobed; styles 0.3–0.4 mm. long, slightly clavate, bifid to the middle or below; capsule glabrous, 1.4–1.6 mm. long, slightly broader than long, strongly and subacutely 3-lobed; broader below the equator, base truncate; seeds tetragonal, 1–1.2 mm. long, 0.7–0.8 mm. tangentially and radially, ovate-acute radially, base truncate, facets with mostly 3, sometimes 2, high rounded ridges passing but slightly through the sharp angles, coat white, microreticulate.—PLATE 660A.

TYPE: Blue Creek, Chisos Mountains, Brewster County, TEXAS, Aug. 1, 1931, *C. H. Mueller 8080* (G!).

This same number at M, NY, and US consists wholly of *E. cinerascens*. There was a little bit of this mixed with the collection at G. This number at F contains a few fragments of *E. theriaca*, the rest is *E. cinerascens*. Known only from the type. (MAP 7).

39. *EUPHORBIA ARIZONICA* Engelm. in Emory, U. S. & Mex. Bound. Surv. **2** (1): 186. 1859. TYPE: Arizona (without further locality) Nov., 1856, A. Schott (M 46906!, fragment F!, photographs F!, G!, W!). A young erect plant with large leaves.—*Chamaesyce arizonica* (Engelm.) Arthur, *Torreyana* **11**: 260. 1911.

E. versicolor Greene, Bot. Gaz. **6**: 184. 1881. TYPE: San Francisco Mountains near Clifton, Greenlee County, Arizona, Sept. 3, 1880, E. L. Greene (Herb. Greeneanum, Notre Dame; photograph G!; ISOTYPE NY!). About an average member of the species.—*Chamaesyce versicolor* (Greene) Norton, Contr. U. S. Nat. Herb. **25**: 345. 1925.

E. portulana S. Watson, Proc. Amer. Acad. Arts & Sci. **24**: 73. 1889. TYPE: island in harbor, Guaymas, Sonora, Mexico, Oct., 1887, Ed. Palmer 321 (G!; ISOTYPE C!).—Stems unusually rigid and numerous.—*Chamaesyce portulana* (S. Wats.) Millsp., Field Mus. Pub. Bot. **2**: 411. 1916.

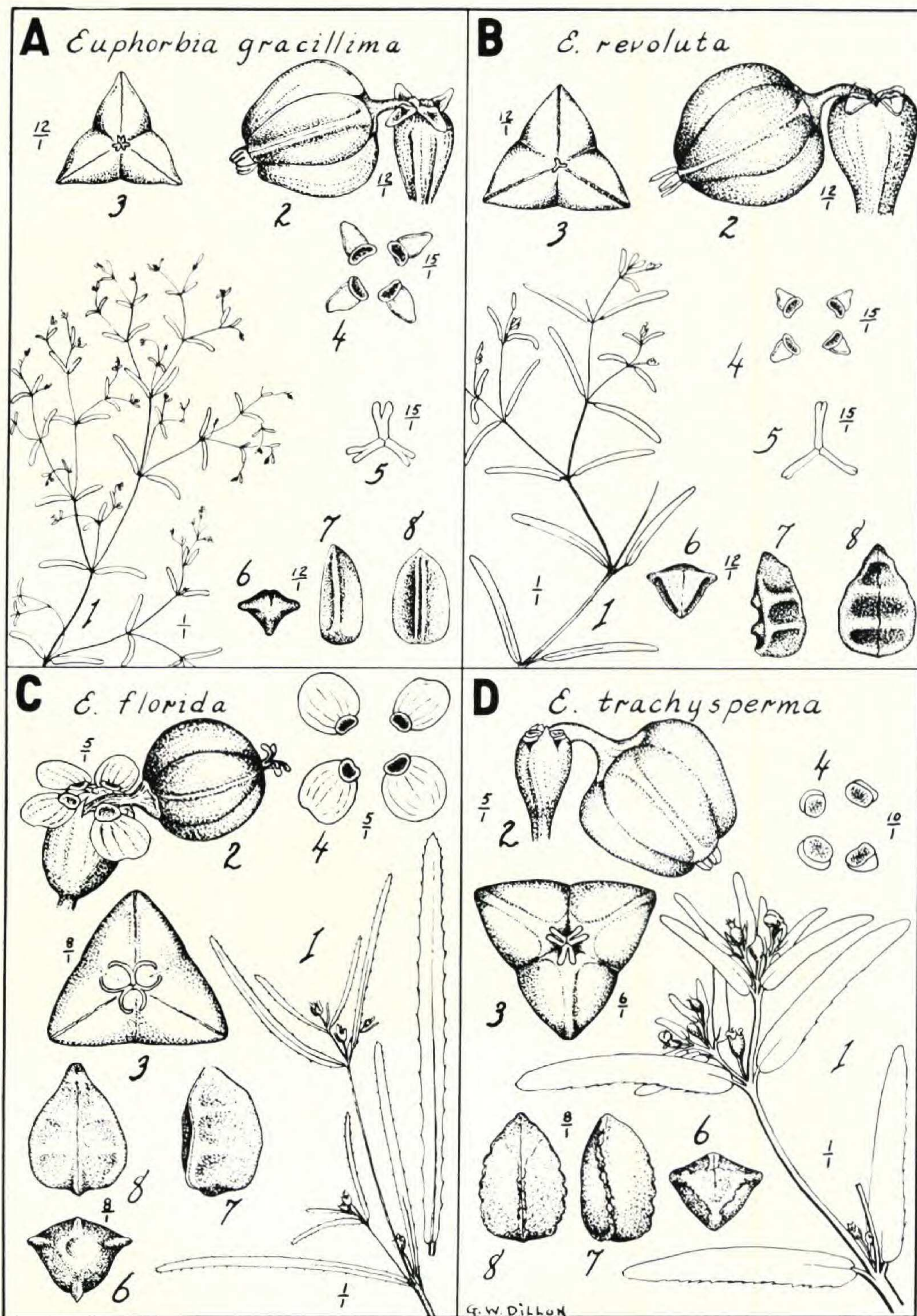
E. purisimana Millsp., Proc. Calif. Acad. Sci., ser. 2, **2**: 225. 1889. TYPE: Purisima, Lower California, Mexico, Feb. 12, 1889, T. S. Brandege (F 196127!; photographs G! W!; ISOTYPE C!). Unusual in that the glands on most, but not all, of the involucre lack appendages.—*Chamaesyce purisimana* (Millsp.) Millsp., Field Mus. Pub. Bot. **2**: 411. 1916.

E. collina T. S. Brandege, Univ. Calif. Pub. Bot. **4**: 184. 1911 (not Philippi, *Linnaea* **29**: 41. 1857–8). TYPE: Cerro de San Ignacio, Durango, Mexico, July, 1910, C. A. Purpus 4599 (C 144767!; fragment F!; ISOTYPES F!, G!, M!). An entirely typical member of the species.

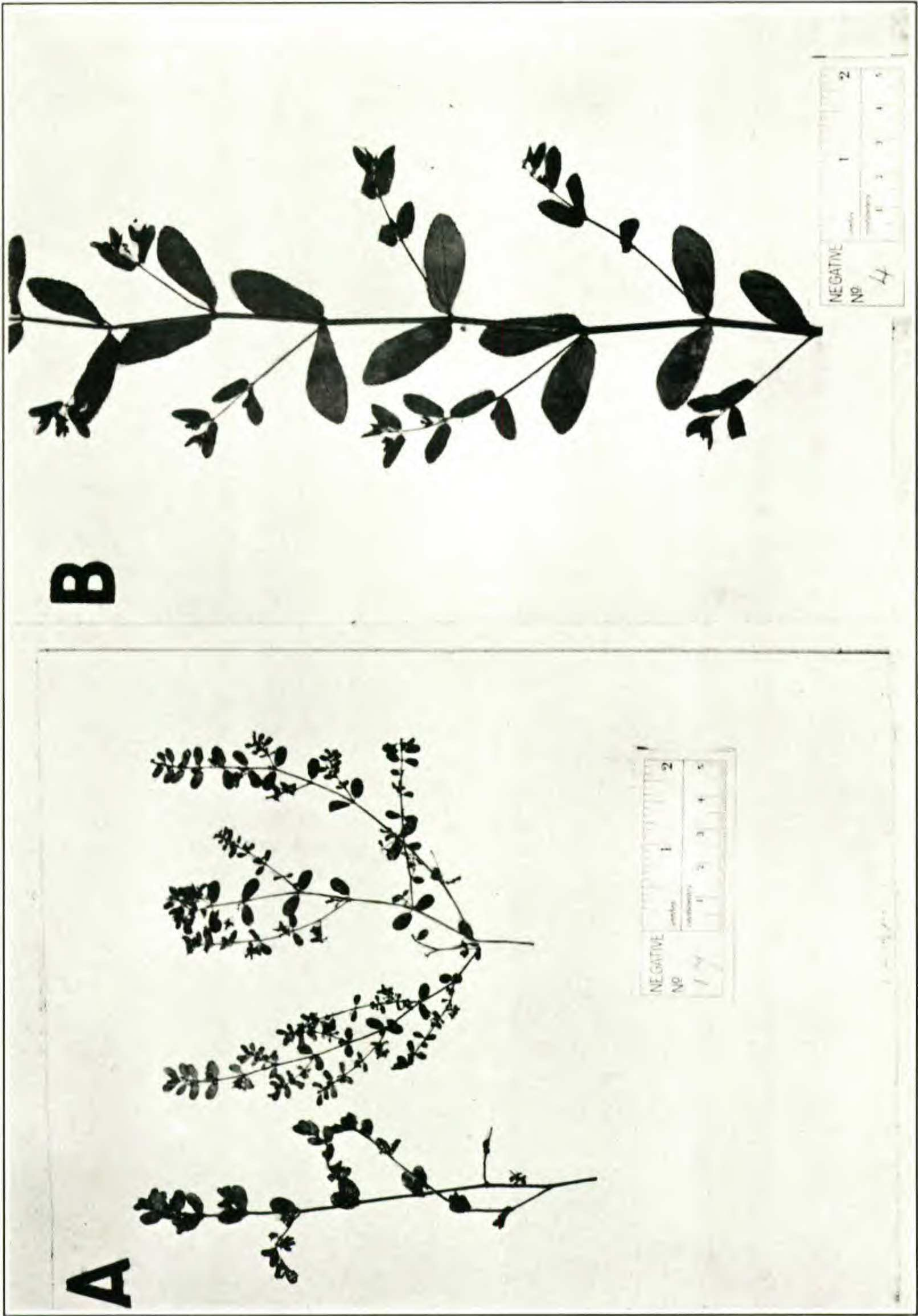
Perennial from a woody taproot, erect or prostrate, sometimes forming mats; stems up to 30 cm. long, slender, with fine, spreading, mostly clavate, microscopically smooth hairs, internodes up to 3 cm. long, generally shorter, often very short towards the ends of the branches; leaf-blades reddish, 1–10 mm. long, deltoid-ovate, ovate, ovate-oblong with oblique base, or the upper very small and oval-cuneate, mostly with fine spreading hairs at least on the lower surface, margin entire, petioles 1–2 mm. long, clothed as the leaves; stipules minute and often not visible, lower united, upper distinct; peduncles filiform, with fine spreading hairs, 1–4 mm. long, mostly 1–2 mm. long; cyathia solitary at the nodes but often congested by the shortening of the upper internodes; involucre long-turbinate, constricted above, ca. 1.5 mm. long, 0.8 mm. diam., with sparse short spreading hairs without, glabrous within; lobes subulate, equaling the glands, entire, ciliate on the margins; glands 1.5–2 times as long as wide, 0.3–0.4 mm. long, concave, red; appendages glabrous, oval, up to 1 mm. long, white but rubescent; fifth gland absent, its sinus narrowly V-shaped and depressed halfway to base of the involucre; bracteoles reduced to one sparsely hairy filiform appendage

adnate below to the involucre opposite each gland, two-thirds as long as the involucre or shorter; staminate flowers 5–10 (or rarely 12), mostly 6–7; androphores glabrous, equaling the glands, 1.5 mm. long; gynophore glabrous, long-exserted and reflexed at maturity; ovary three-lobed, densely pubescent, styles parted to the middle, slender, glabrous, ca. 0.6 mm. long; capsule with spreading hairs, spheroid with flattened base, ca. 1.5 mm. long and in diam., obtusely three-angled; seeds quadrangular, 1–1.2 mm. long, ca. 0.6 mm. radially and tangentially, base truncate, outline narrowly ovate radially, raphe obliquely truncated by the micropylar region, facets with low, often anastomosing, ridges which slightly include the angles, white coat very thin, the brown testa showing through.—PLATE 661B.

Colorado Desert, California, south to Lower California, east to Texas, Chihuahua, and northern Durango (MAP 43). Representative specimens seen: CALIFORNIA. San Diego Co.: Palm Canyon, Borrego Valley, *Templeton 1632* (Lam, P). Riverside Co.: Andreas Canyon, Palm Spring region, *Peirson 4256* (Peir). ARIZONA. Yuma Co.: near Quartzsite, *Kearney & Peebles 10215* (US); Palm Canyon, S. H. Mountains, *Peebles & Loomis 6755* (US). Coconino Co.: Phantom Ranch, Bright Angel Creek, Grand Canyon, Nov. 16, 1935, *Collom* (US); Shinumo Creek, Grand Canyon, Oct. 21–26, 1906, *Pilsbry* (Ph). Maricopa Co.: Cave Creek, north of Phoenix, *Peebles, Harrison & Kearney 3685* (US). Pinal Co.: near Superior, *Kearney & Peebles 9213* (US). Pima Co.: Sierra Tucson, April 27, 1884, *Pringle* (NY); Baboquivari Mountains, *Kearney & Peebles 10395* (US); rocky south slopes, north of Ranger Station, Baboquivari Mountains, *Wiegand, Maguire, Richards & Moeller 10761* (G, I). Santa Cruz Co.: Tumacacori, *Harrison & Kearney 6021* (G, US). Greenlee Co.: disturbed soil at side of Highway 81 on Smelter Hill, south of Clifton, west exposure, *Maguire, Richards & Moeller 11780* (G, I). Graham Co.: east exposed slopes, Upper Creosote Zone, Peloncillo Mountains, 20 miles east of Safford, *Maguire, Richards & Moeller 10642* (I); Coolidge Dam, *Kearney & Smith 9029* (US). NEW MEXICO. Doña Ana Co.: Peña Blanca, 1903, *Wooton* (P). TEXAS. El Paso Co.: El Paso, Sept. 11, 1885, *M. E. Jones* (I, O, US). Brewster Co.: Persimmon Gap, Santiago Mountains, *Cory 6906* (G); frequent on talus, 14 miles east of Castolon, *Cutler 664* (G); frequent along creek-bed at base of Lone Mountain, Chisos Mountain area, *Warnock 657* (US). MEXICO: BAJA CALIFORNIA: in wash north of flying field, near Santa Rosalia, *Ferris 8699* (NY, US); head of Concepcion Bay, *J. N. Rose 16696* (G, NY, US). CHIHUAHUA: Candelaria, *E. Stearns 245* (US); 11 miles northeast of Camargo, crevices on face of lava cliff, *Johnston 7917* (G). For citation of additional specimens see Bull. Torr. Bot. Club **63**: 416. 1936.



WHEELER ON EUPHORBIA



A. *EUPHORBIA CHAMAESYCE* L. Photograph of type from Jamaica, *P. Browne* (Linnaean Herb.). B. *EUPHORBIA MACULATA* L. Photograph of type, source and collector unknown (Linnaean Herb.). Photographs by courtesy of Section of Photography, Field Museum of Natural History.

My previous statement, l. c., as to type locality and type collection was based on confusion resulting mainly from the fact that I had not seen Engelmann's specimens. Now it is clear that the specimen taken as type here is the one which should be and has been taken as type by Millspaugh. There is a specimen of this species purporting to have as its origin Warm Springs, Mohave Desert, San Bernardino County, California, May, 1882, *S. B. & W. F. Parish 1384* (M 144655). But this is the type collection of *E. Parishii*. Another sheet of the same collection (M 144654) is *E. Parishii*. Since 144655 is the only specimen of *E. arizonica* claiming to have come from Mohave Desert and since it appears that a mixture may have occurred in the mounting, I question the source of 144655.

40. *EUPHORBIA SETILOBA* Engelm. ex Torrey, Rep. Expl. & Surv. Miss. R. to Pacific Ocean **5** (2): 364. 1857. TYPE: Fort Yuma, Imperial County, California, *Major G. H. Thomas* (NY!; ISOTYPE M!). A biologically typical member of the species.—*Chamaesyce setiloba* (Engelm.) Millsp. ex Parish, Cat. Pl. Salton Sink, 6. 1913 (preprint from Carn. Inst. Wash. Pub. **193**: 110. 1914).

E. floccosiuscula M. E. Jones, Contr. West. Bot. **15**: 145. 1929. TYPE: Hermosillo, Sonora, Mexico, Oct. 27, 1926, *M. E. Jones 22739* (P!; ISOTYPE M!). A plant with unusually long internodes, apparently from a shady situation.

Annual, with microscopically smooth tapering hairs throughout; stems slender, prostrate or perhaps rarely erect, rarely forming mats, internodes up to 2 cm. long, often much shortened toward the stem-tips congesting the leaves and involucre into dense small "heads"; leaf-blades 2–7 mm. long, oblong or oblong-ovate, base slightly oblique, petioles up to 1 mm. long; stipules not apparent; peduncles up to 1.5 mm. long, clothed as the herbage, filiform; cyathia solitary at the nodes; involucre very shortly hairy without, glabrous within, long-turbinate, constricted above, ca. 1.2 mm. long, ca. 1 mm. in diam.; lobes narrowly deltoid, entire, ciliate, equaling the glands; glands red, transversely oblong or the distal sometimes discoid, concave, 0.1–0.2 mm. long; appendages white, glabrous, ca. 1 mm. long and wide, parted into 3–5 narrow attenuate segments; fifth gland totally absent, its sinus depressed halfway to base of the involucre; bracteoles reduced to one filiform appendage adnate below to the involucre opposite each gland, with few or no hairs, free portion only ca. 0.2 mm. long; staminate flowers 3–7 per cyathium; androphores glabrous, ca. 1.2 mm. long, ca. equaling the glands; gynophore glabrous or with a few hairs above; ovary three-

lobed, long-white-hairy, styles glabrous, 0.4–0.5 mm. long, parted to the base, clavate, slender; capsule long-hairy, spheroid, ca. 1.1 mm. long, sharply angled, seeds 0.9–1 mm. long, ca. 0.6 mm. radially and tangentially, quadrangular, sharply angled, facets with low irregular wrinkles, base truncate, ovate-acutish radially, coat microreticulate, white but the brown testa showing through. —PLATE 661A.

Deserts of California from Inyo County south to San Diego and Imperial Counties, southern Nevada, western and southern Arizona, Gila River Valley in New Mexico, east to western Texas, south to Baja California and Sinaloa (MAP 19). Representative specimens seen: CALIFORNIA. Inyo Co.: Funeral Mountains, *Coville & Funston 333* (US). San Diego Co.: sandy soil, upper end of San Felipe Wash, *J. T. Howell 3255* (M). ARIZONA. Yuma Co.: near Quartzsite, *Kearney & Peebles 10213* (US). Pima Co.: fenced area, Santa Rita Forest Reserve, *Griffiths 6080* (M, US). Cochise Co.: sandy washes, Fort Lowell, *Thornber 180* (M, NY). NEW MEXICO. Grant Co.: gravel beds along the Gila, *E. L. Greene 265* (M). TEXAS. Brewster Co.: frequent on flats between Nugent Mountain and Lone Mountains, *Warnock T562C* (US); infrequent at Persimmon Gap, *Warnock T553* (US). MEXICO: BAJA CALIFORNIA: Agua Verde, *J. N. Rose 16574* (US). SONORA: in sand on river bank, Chorihoa, Rio Mayo, *Gentry 1609* (F, G, US); hillside 9 miles north Magdalena, *Wiggins 6194* (US). SINALOA: Fuerte, *Rose, Standley & Russell 13540* (US). For citation of additional specimens see Bull. Torr. Bot. Club **63**: 429–430. 1936.

The specimen at M, which it would seem might well be taken as type, is too fragmentary.

41. EUPHORBIA VILLIFERA Scheele, *Linnaea* **22**: 153. 1849.

Annual, or definitely perennial in some Mexican specimens; stems erect, 6–45 cm. tall, pilose with long white tapering hairs, or rarely glabrous, epidermis papillate, papillae disappearing in age, internodes mostly 1–2 cm. long, ultimate branchlets often subcapillary; leaf-blades ovate to triangular-ovate-acute, often falcate, 3–10 mm. long, uppermost often much reduced and narrower, mostly glabrate above, usually pilose beneath, epidermis papillate beneath, base usually strongly inequilateral, margin entire to coarsely serrate; petioles ca. 1 mm. long, strongly amplexicaul; stipules 0.5–1 mm. long, distinct to wholly united, mostly attenuate and often with erect linear divisions, mostly glabrous; peduncles mostly glabrous, 1–2 mm. long; cyathia solitary at the nodes and terminal; involucre campanulate, 0.9–1 mm. in diam., glabrous or occasionally with sparse short spreading hairs outside, pubescent at the summit inside; lobes triangular, acuminate, hairy inside, about equaling the

glands; glands transversely elliptical to oblong, 0.3–0.5 mm. long, depressed or slightly folded in the middle; appendages 1–3 times as wide as and mostly a little longer than the glands, white, glabrous, margin entire to crenulate; fifth gland linear, $\frac{1}{2}$ – $\frac{2}{3}$ as long as the lobes; sinus small, U-shaped, little depressed; bracteoles partly free and partly united into a radial partition adnate for ca. $\frac{2}{3}$ its length to involucre, somewhat shallowly divided above, pubescent above, nearly equaling the androphores; staminate flowers 9–25 per cyathium; androphores glabrous, ca. 0.9 mm. long; gynophore glabrous, exserted and mostly reflexed; ovary glabrous, sharply 3-angled; styles glabrous, ca. 0.4 mm. long, $\frac{1}{3}$ – $\frac{1}{2}$ bifid; capsule glabrous, sharply 3-angled, the angles often produced beyond the seed into an empty carina, 1.3–1.9 mm. long, 2.6–3.2 mm. in diam.; seeds ovoid-quadrangular, 1–1.1 mm. long, 0.7–0.9 mm. tangentially and radially, radially ovate, subacute, back and lateral angles sharp, facets convex, smooth to faintly and broadly wrinkled, coat light brown to white, subfarinose and microreticulate.

KEY TO VARIETIES

Herbage more or less pilose a. var. *typica*.
Herbage glabrous b. var. *nuda*.

41a. *E. VILLIFERA* Scheele, *Linnaea* **22**: 153. 1849, var. **typica**. TYPE: New Braunfels, Comal County, Texas, Aug.–Sept., 1846, *F. Lindheimer 293* (?; ISOTYPE M 200497!). (This collection designated as type by Blankinship, *Ann. Rep. Mo. Bot. Gard.* **18**: 149. 1907.) A good representative of the species, some of the leaves slightly toothed.—*Chamaesyce villifera* (Scheele) Small, *Fl. Se. U. S.*, 712, 1333. 1903.

Chamaesyce Stanfieldii Small, l. c. TYPE: San Marcos and vicinity, Hays County, Texas, summer, 1898, *S. W. Stanfield* (NY!; photographs G!, W!). Leaves mostly entire, good match for isotype of *E. villifera*.—*E. Stanfieldii* (Small) Cory, *RHODORA* **38**: 407. 1936.—PLATE 659D.

Texas, south to Oaxaca, Yucatan, and Guatemala (MAP 16). Representative specimens from the United States: TEXAS. Hays Co.: San Marcos and vicinity, summer, 1898, *Stanfield* (NY); San Marcos, spring, 1897, *Stanfield* (NY). Travis Co.: Mt. Bonell, Austin, *Hall 550* (M, NY); Mt. Bonell, near Austin, *Young 50* (G, M); southwest of Austin, *Rose & Russell 24111* (NY). Comal Co.: near New Braunfels, *Plateau 5447* (NY); New Braunfels, 1846–1851, *Lindheimer 294* (M), *308* (G, M), *508* (G, M), *1148* (G, NY), *1149* (G, NY); New Braunfels, 1850, *C. Wright* (M, NY). Kerr Co.: 5.8 miles southeast of Mountain Home, *Cory 19310* (G); $13\frac{3}{4}$ miles southwest of Kerrville, *Cory 23954* (G). Real Co.: 16 miles north of Bandera, *Cory 8898* (G);

16¼ miles north of Leakey, *Cory* 24387 (G); 14.7 miles north of Leakey, *Cory* 27404 (G). Brewster Co.: Blue Creek, Chisos Mountains, *Cory* 7006 (G); Blue Creek Trail, Chisos Mountains, *Cory* 7329 (G); Chisos Mountains, *Mueller* 8081 (G, NY); in basin of Chisos Mountains, *Warnock* C646 (US); Glass Mountain, *Warnock* T202 (US).

This species is exceedingly variable in habit and margin of the leaf. The distinction attempted by Small when he separated this species into two, one with leaves entire or essentially so and the other with leaves serrate, is useless since it would divide the species in such a way that there would be more intermediates than members of the two extremes. Furthermore, Small's type was far from typical of the supposed entity he attempted to define.

Lindheimer 293 is one of the numbers combined and distributed as Fasc. III 530. *Warnock* T202 is atypical in having styles ca. 0.7 mm. long, 33–34 staminate flowers, and a woody perennial root.

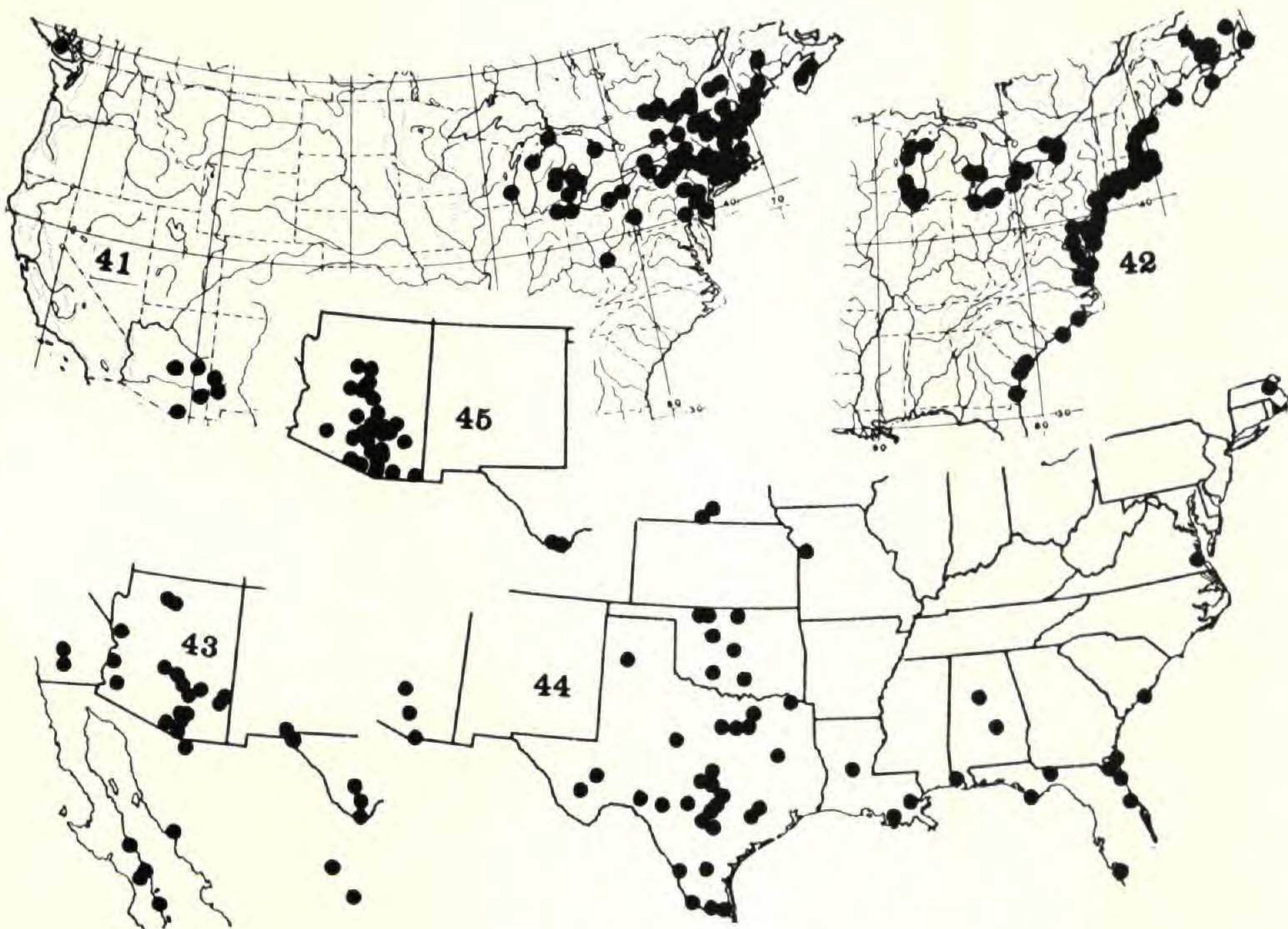
41b. *E. VILLIFERA* Scheele var. *NUDA* Engelm. ex Boiss. in DC. Prod. **15** (2): 45. 1862. TYPE: Growing in the bed of a mountain torrent near New Braunfels, Comal County, Texas, Nov., 1850, *C. Wright* (M 200505!; photographs G!, W!; ISOTYPES G!, Ge!, NY!). Known only from the type collection.

This rather trifling variant is striking for being a glabrous member of an otherwise more or less pilose species.

42. *EUPHORBIA SERRULA* Engelm. in Emory, U. S. & Mex. Bound. Surv. **2** (1): 188. 1859. TYPE: Guadalupe Pass on mountains (between San Bernardino and Sierra de las Animas), Sonora?, Oct. 4, 1851, *C. Wright* 1843 (M 144668!; photographs G!, W!; ISOTYPES G!, NY!).—*Chamaesyce serrula* (Engelm.) Wootton & Standley, Contr. U. S. Nat. Herb. **16**: 144. 1913.

Annual; stems few to several, mostly prostrate, 5–22 cm. long, 0.5–1 mm. thick, pilose, internodes up to 2.5 cm. long, average ca. 1 cm. long; leaf-blades 3–11 mm. long, glabrous to sparsely pilose above, more or less pilose beneath, broadly elliptic, oblong-lanceolate, oblong, or obovate-oblong, but most commonly oblong, often falcate, base markedly inequilateral, margin sharply serrate on the larger leaves to subentire on some of the smaller; petioles 0.5–1 mm. long; stipules distinct, glabrous to rarely ciliate, deltoid, attenuate, central lobe much exceeding the lateral and up to 1.7 mm. long; peduncles ca. 1 mm. long, glabrous to rarely sparsely pilose; cyathia at the upper nodes, solitary, but often crowded toward the branch-tips by the short

upper internodes; involucre 1–1.1 mm. in diam., shortly obconical-campanulate, glabrous to rarely sparsely pilose outside, sparsely short-hairy at the summit inside; lobes triangular, exceeding the glands, often 2–3-parted above; glands transversely elliptical to oblong, or rarely subcircular, slightly depressed in the middle, 0.2–0.6 mm. long; appendages white, glabrous, ca. as wide as to twice as wide as the glands, rounded, subentire to crenulate; fifth gland absent to nearly as long as lobes, linear;



MAP 41, range of *EUPHORBIA VERMICULATA* in Canada & U. S.; 42, *E. POLYGONIFOLIA*; 43, *E. ARIZONICA*; 44, *E. CHAMAESYCE* in U. S.; 45, *E. CAPITELLATA* in U. S. (MAPS 41 & 42 from Goode's Series of Base Maps, North America No. 102, by permission of the University of Chicago Press. Dotted lines are the thousand foot contour.)

sinus V-shaped, not depressed; bracteoles united and forming a radial appendage adnate to the involucre for ca. half its length, glabrous below, entire to 3-parted, sparsely pubescent above, about equaling the androphores; staminate flowers 7–13 per cyathium; androphores 1–1.1 mm. long, glabrous; gynophore long-exserted and usually reflexed, glabrous or rarely very sparsely pilose; ovary 3-lobed, glabrous; styles 0.3–0.4 mm. long, bifid halfway to nearly to the base, subclavate; capsule glabrous, 2.1–2.6 mm. long, broader than long, turgidly triangular in cross-section, broader below the equator, base truncate; seeds quadrangular, 1.5–2 mm. long, 1.1–1.5 mm. tangentially, 1.1–1.3 mm. radially, ovate to rotund-ovate radially, dorsal and lateral

angles subalate, ventral blunt, ventral facets plane to slightly concave, dorsal facets plane to slightly convex, surface essentially smooth, coat chalk-white to occasionally sordid.—PLATE 658D.

Arizona, New Mexico, western Texas, Chihuahua, Coahuila, Durango, and Zacatecas (MAP 7). Representative specimens seen: ARIZONA. Mohave Co.: 4 miles east of Peach Springs, *Kearney & Peebles 12767* (US). Pima Co.: Tucson, *Toumey 261* (US); common on mesas, Tucson, *Thornber 47* (M, NY, T, US). Cochise Co.: between Tombstone and Bisbee, *Harrison & Kearney 6085* (US); Mexican boundary line, south of Bisbee, *Mearns 902* (US). NEW MEXICO. San Juan Co.: vicinity of Farmington, *Standley 7053* (US). Santa Fe Co.: valleys between the dry gravelly hills, Santa Fe, *Fendler 796* (G, M); near Tesuque, Aug. 20, 1904, *Wooton* (US). Socorro Co.: foothills east of Doyle Rentfrow's "desert claim", *Eggleston 19370* (US). Chaves Co.: 20 miles south of Roswell, *F. S. & E. S. Earle 285* (US). Doña Ana Co.: beside the white sands, Aug. 24, 1899, *Wooton* (US); mesa near Las Cruces, Aug. 12, 1895, *Wooton* (NY). Eddy Co.: dry hillside near Carlsbad Cavern, *Standley 40397* (US). Co.? 1852, *C. Wright 1844* (G, M, NY). TEXAS. Hudspeth Co.: Eight Mile Well, *Cory 1942* (G). Culberson Co.: Van Horn, *Tharp 3557* (US); Walker Ranch, *Cory 1941* (G). Jeff Davis Co.: north edge of Davis Mountains, 5 miles east of Kent, *Rollins & Chambers 2761* (G). Terrell Co.: 25 miles northeast of Dryden, Holdeman Ranch, *Cory 3201* (G). "Collected in Expedition from western Texas to El Paso, New Mexico", May–Oct., 1849, *C. Wright 658* (G, NY). MEXICO: CHIHUAHUA: volcanic mesa near Horcasitas, *Pringle 799* (G, M, US); pass between Las Animas and Chilicote Station, *I. M. Johnston 7995* (G); 8 miles northwest of Cruces, silty plain, *Johnston 7981* (G); 2 miles south of San Fernando, silty soil on plain, *Johnston 7940* (G); 3 miles north of Charco Piedra (21 miles northeast of Camargo), *Johnston 7928* (G). COAHUILA: 12 miles north of Monclova, *Johnston 7196* (G); 2 miles northwest of Frontera (road from Monclova westward to beyond Cuatro Cienegas), *Johnston 7183* (G); 24 miles west of Saltillo, silty benches at base of hills, *Johnston 7673* (G); desert 41 miles west of Saltillo, *Johnston 7691* (G); Torreon, Oct. 13–20, 1898, *Ed. Palmer 501* (G, US). DURANGO: 19 miles north of Zaragoza, *Shreve 8820* (G); Mapimi, Oct. 21–23, 1898, *Ed. Palmer 532* (G, US). ZACATECAS: Conception de Oro, Aug. 11–14, 1904, *Ed. Palmer 320* (G, US); Hacienda de Cedros, *Lloyd 209* (US); 5 miles south of Majoma, *Johnston 7393* (G).

43. EUPHORBIA INDIVISA (Engelm.) Tidestrom, Proc. Biol. Soc. Wash. **48**: 40. 1935.—*E. dioeca* HBK. var. ? *indivisa* Engelm. in Emory, U. S. & Mex. Bound. Surv. **2** (1): 187. 1859. TYPE:

“Stony hills near the Coppermines, Aug. 20, 1851”, Grant County, New Mexico, *C. Wright 1845*, (G!; ISOTYPES M!, US!). Engelmann’s specimen of this number was unnamed and also mounted in such a way that the relation of specimens and labels on the sheet is uncertain. Millsp., *Field Mus. Pub. Bot.* **2**: 387. 1914, designated as type the specimen at G.—*E. adenoptera* Bertol. var. *indivisa* (Engelm.) Boiss. in DC. *Prod.* **15** (2): 49. 1862.—*Chamaesyce indivisa* (Engelm.) Millsp., *Field Mus. Pub. Bot.* **2**: 387. 1914.

Annual; stems few to several, prostrate, 6–25 cm. long, mostly 0.5–1 mm. thick, crisply pilose, the young tips densely so, internodes up to 2.5 mm. long, median ca. 1 cm., shortened to but 1 or 2 mm. at the branch tips; leaf-blades broadly ovate-deltoid-falcate and strongly asymmetrical (butterfly-wing-shaped) to oblong or even linear-oblong, 5–8 mm. long, mostly serrulate, mostly glabrous above, sparsely crisp-pilose beneath, often glabrate; petioles crisp-pilose, ca. 1 mm. long; stipules distinct, linear-subulate, 1–1.4 mm. long, usually entire, with short crisped hairs; cyathia subsessile, solitary at the nodes but clustered at the branch-tips by extreme shortening of the internodes; involucre cylindrical-campanulate, 0.9–1 mm. in diam., pubescent outside especially above, short-hairy within on the lobes; lobes subulate, proximal shorter than the glands, distal slightly exceeding the glands; glands transversely oval to oblong, usually folded, 0.25–0.6 mm. long, the proximal about twice as long as the distal; appendages white, rubescent, glabrous, irregularly wavy-margined, the distal fan-shaped, symmetrical, 0.2–0.3 mm. long, the proximal oblong to oblong-spatulate or obliquely elliptical, greatly prolonged parallel to the columella, 1.1–1.6 mm. long; fifth gland linear, half as long as the lobes; sinus U-shaped, depressed halfway to base of involucre; bracteoles about half as long as the androphores, of 1–3 linear segments opposite each gland, adnate below to the involucre, pubescent above; staminate flowers 5–15 per cyathium; androphores glabrous, 1.1–1.5 mm. long; gynophore crisply hairy above, reflexed into the sinus but scarcely exerted; ovary 3-lobed, densely strigose; styles glabrous, shortly united below, entire or sometimes bifid $\frac{1}{3}$ to base, 0.7–1.3 mm. long; capsule strigose, 1.4–1.6 mm. long, subpyriform, strongly 3-lobed, base truncate; seeds quadrangular, 0.9–1.2 mm. long, 0.5–0.6 mm. tangentially, 0.4–0.5 mm. radially, narrowly ovate-acute radially, base truncate, facets with 3–5 rounded transverse ridges passing slightly through the angles, separated by sharp deep grooves, coat white, microreticulate, often but little obscuring the pale brown testa.—**PLATE 663D.**

Southern Arizona, southern New Mexico, western Texas, Sonora, Chihuahua, Durango, Coahuila, and San Luis Potosi

(MAP 11). Representative specimens seen: ARIZONA. Pinal Co.: Oracle, *Eggleston 15951* (Ph). Pima Co.: Range Reserve near Tucson, Sept. 13, 1911, *Wooton* (US). Santa Cruz Co.: Patagonia Mountains, *Kearney & Peebles 10145* (US); Nogales, *Harrison & Kearney 6028* (G, US). Cochise Co.: Mescal, *Griffiths 1817* (NY); Bisbee, *C. E. Lloyd 459* (G); Rucker Valley, 1881, *Lemmon 454* (F, G). NEW MEXICO. Sierra Co.: 2 miles south of Hillsboro, *Metcalf 1292* (G, NY). TEXAS. Brewster Co.: Alpine, Sept. 1, 1909, *Mackensen* (M); 13 miles south of Alpine, *Cory 9264* (G); Limpia Canyon, Davis Mountains, *Hanson 744* (G). MEXICO: SONORA: gravelly arroyo, *Thurber 963* (G); Rio Magdalena on road to Cananea and Remedios, *Wiggins 7073* (W). CHIHUAHUA: hills and plains near Chihuahua, *Pringle 326* (G); 5 miles north of Mestehñas, *Johnston 7954* (G). DURANGO: 26 miles west of Mapimi, *Johnston 7780* (G). COAHUILA: Soledad, Sept., 1880, *Ed. Palmer 1206* (G). SAN LUIS POTOSI: in arenosis, Morales, *Schaffner 855* (G).

This entity is very closely related to *E. dioeca* HBK. Since the other members of the group to which *E. indivisa* belongs are all extra-limital, the specific lines drawn by Millspaugh, Field Mus. Pub. Bot. **2**: 383–392. 1914, in his paper, “‘Euphorbia adenoptera’ in North America”, are accepted, with some hesitation, until the group can be carefully studied.

The collection made in Texas in 1855 by *Dr. Antisell* (NY), reported by Engelmann in Emory, U. S. & Mex. Bound. Surv. **2** (1): 187. 1859, as *E. dioeca* HBK., is here included under *E. indivisa*, as are also the plants described by Coulter, Contr. U. S. Nat. Herb. **2**: 389. 1894 as *E. adenoptera* Bertol.

44. EUPHORBIA THYMIFOLIA L., Sp. Pl. **1**: 454. 1753. TYPE: (?)—*Anisophyllum thymifolium* (L.) Haw., Syn. Pl. Succ., 160. 1812.—“**E.[uphorbia] maculata** L. (var. *thymifolia* L.)” Griseb., Fl. Brit. W. Ind. Isl., 53. 1859, basynym not stated but reference made to *E. maculata* δ . Pl. Carib. (not located).—*Chamaesyce thymifolia* (L.) Millsp., Field Mus. Pub. Bot. **2**: 412. 1916.

Additional synonyms listed by Thellung in Ascherson & Graebner, Syn. Mitteleur. Fl. **7**: 438–439. 1917.

Annual (or short-lived perennial?); stems prostrate, mostly 0.5–1 mm. thick, strigose to strigose-tomentulose, sometimes glabrate at maturity, 15–30 cm. long, internodes on the main stems from a maximum of 2 cm. long to only ca. 1 mm. long on some of the lateral branchlets; petioles 0.5–1 mm. long; blades broadly elliptic to oblong (often narrowly so) and ovate-lanceolate, 3–10 mm. long, base inequilateral, apex blunt to acute, nearly glabrous above, sparsely tomentulose to subglabrous

beneath; stipules ca. 1 mm. long, linear-subulate, distinct or slightly united, entire or slightly parted, with erect hairs; cyathia subsessile, mostly in small cymes of 2-several on short lateral branchlets, involucre broadly obconical, soon distended and distorted by the base of the partially included capsule, upwardly strigose outside, subglabrous inside; lobes triangular, distal equaling the glands, proximal much shorter, upwardly strigose; glands red, subcircular to very broadly transversely oval, the distal the more nearly circular, 0.2–0.25 mm. in diam., slightly depressed in the center; appendages on distal glands symmetrical, margining the glands and $1\frac{1}{2}$ times as wide, to rudimentary, on proximal glands up to twice as long as glands, asymmetrical, elongated toward the sinus, glabrous, white to pink, entire to crenulate; 5th gland absent; sinus broadly U-shaped, depressed nearly to base of involucre; bracteoles few, linear, sparsely pubescent; staminate flowers 3–5 per cyathium; androphores glabrous, 0.9–1.2 mm. long; gynophore very short (ca. 0.5 mm. long), strigose above; ovary densely hairy; styles bifid about halfway, glabrous, 0.4–0.5 mm. long, tips usually clavate; capsule upwardly strigose, sharply 3-angled, widest near the base, 1.1–1.5 mm. long; seeds sharply quadrangular, with low subregular transverse ridges often slightly including the angles, ovate to narrowly ovate radially, 0.8–0.9 mm. long, 0.45–0.55 mm. tangentially and radially.—PLATE 655A

Mexico, West Indies, South America, Old World tropics. This species is not known from the United States but is included here because of its close relationship with *Euphorbia supina*. The description given above is based on the following specimens: MEXICO: Tamaulipas: Tampico, June 3–6, 1910, *Ed. Palmer 572* (M). Sinaloa: Comedero, Jan. 27, 1940, *Gentry 5395* (W); Cofradia, Nov. 25, 1939, *Gentry 5062* (W).

The application of the name *E. thymifolia* here made is the traditional one. Whether the type in the Linnaean Herbarium is identical with the plants included here is uncertain. According to his notes, A. Gray considered the specimen of *E. thymifolia* in Linnaeus' herbarium identical with the entity called *E. supina* in this paper. That interpretation may be correct but Gray might easily have overlooked the small differences between these two entities. The customary application will be continued until definite evidence to the contrary is submitted by someone particularly acquainted with the plants concerned.

I am applying the name *E. thymifolia* in the sense in which it was used by Boissier in DC. Prod. **15** (2): 47. 1862. Thellung, in his discussion of his application of this name in Ascherson &

Graebner, Syn. Mitteleur. Fl. **7**: 475. 1917, states: "Linné's Herbarexemplar gehört nach Boissier (a. a. O. 1862), wie auch dasjenige des jüngeren Burmann, zu *E. thymifolia* in unserem Sinne." It is not at all certain that Boissier ever saw Linnaeus' specimen. Boissier merely stated: "157. *E. thymifolia* (Burmann fl. Ind. pag. 2, et herb.)." There is no definite evidence to indicate that the herbarium referred to is Linnaeus'.

45. *EUPHORBIA SUPINA* Raf., Amer. Monthly Mag. **2**: 119. 1817 (Dec.). TYPE: doubtless not extant. "Very common on the downs and seashores of Long-Island, north and south, also in New-Jersey, Sandy-Hook, &c."—*Xamesike supina* (Raf.) Raf., Aut. Bot., 87. 1840.—*Chamaesyce supina* (Raf.) Moldenke, An annotated and classified list of H. N. Moldenke collection numbers from No. 1 to No. 11,277 inclusive, 135. 1939.

E. littoralis Raf., Amer. Mo. Mag. **2**: 119. 1817 (Dec.), not *E. litoralis* HBK., Nov. Gen. et Sp. **2**: 54 (quarto), 43 (folio). 1817 (Apr.).¹ TYPE: doubtless not extant. ". . . it grows on the sandy and gravelly shores of the Hudson from New York to the falls".—*Xamesike littoralis* (Raf.) Raf., Aut. Bot., 97. 1840.

E. depressa Torrey, Cat. Pl. N. Y., 45. 1819, by reference to *E. maculata* L. *sensu* W. P. Barton, Comp. Fl. Phila. **2**: 185. 1818. TYPE: sandy fields and cultivated grounds, common near New York, probably *Torrey* (NY!; photographs G!, W!). Elliott, Sketch Bot. So.-Car. & Georgia **2**: 655. 1824; Sprengel, Syst. Veg. **3**: 794. 1826.—*Xamesike depressa* (Torr.) Raf., Aut. Bot., 97. 1840.

E. thymifolia Michaux, Fl. Bor.-Amer. **2**: 212. 1803. TYPE: Ohio and Mississippi Rivers and Illinois. *Michaux* (Herb. Mus. Paris; photograph G!).

E. thymifolia L. *sensu* Pursh, Fl. Amer. Sept., 606. 1814.

E. maculata L. *sensu* Torrey, Fl. State N. Y. **2**: 176. 1843, and virtually all subsequent American authors; Boissier in DC. Prod. **15** (2): 46. 1862; Small in Britton & Brown, Ill. Fl. No. U. S. & Can. **2**: 373. 1897; Robinson & Fernald, Gray's New Man. Bot. ed. 7, 547. 1908; Thellung in Ascherson & Graebner, Syn. Mitteleur. Fl. **7**: 465. 1917; Jepson, Man. Fl. Pl. Calif., 600. 1925. Not L.

E. meganaesos Featherman, Ann. Rep. Geol. Surv. Louisiana **2**: 71. 1871. TYPE: Grand Isle, Louisiana, *Featherman?* (Louisiana State University?; ISOTYPE G!). A narrow-leaved, apparently erect maritime ecotype representing an almost indefinable tendency.

Chamaesyce Tracyi Small, Fl. Se. U. S., 713, 1333. 1903. TYPE: Biloxi, Harrison County, Mississippi, July 15, 1894 (NY!; photographs G! W!). The same ecotype as *E. meganaesos*.

¹ Date according to Barnhart, Bull. Torr. Bot. Club **29**: 597. 1902.

Chamaesyce Mathewsii Small, Man. Se. Fl. 797, 1505. 1933. TYPE: sand dunes opposite Miami, Dade County, Florida, Nov. 26–Dec. 20, 1913, *J. K. & G. K. Small 4556* (NY!; photographs G!, W!). A robust maritime ecotype intergrading too generally for recognition.

Annual; stems prostrate to erect, sparsely villous or the young stems subtomentose, sometimes glabrate but stem-tips always vestite, 10–45 cm. long; leaf-blades 4–17 mm. long, elliptic-ovate, oblong-ovate to linear-oblong, the larger with inequilateral base, sparsely villous, often glabrate especially above, serrulate to subentire; petioles 1–1.5 mm. long, 2–3-parted, villous; cyathia solitary at the nodes but mostly borne on short congested lateral branches; involucre obconical, ca. 0.8 mm. in diam., villous; glands 0.15–0.25 mm. long, transversely elongate; fifth gland filiform, $\frac{1}{2}$ as long to ca. equaling the lobes; sinus U-shaped, depressed, $\frac{1}{4}$ to $\frac{1}{3}$ to base of involucre, long-hairy; appendages narrow, white, glabrous, irregularly crenulate; staminate flowers 4–5 (sometimes 2–3) per cyathium; androphores glabrous, 0.9–1.2 mm. long; gynophore crisply hairy, barely exerted and mostly reflexed; ovary densely strigose; styles ca. 0.4 mm. (rarely to 0.6 mm.) long, $\frac{1}{4}$ – $\frac{1}{3}$ bifid, clavate, capsule sharply 3-angled. strigose, often partially glabrate, wider below the equator, ca. 1.4 mm. long; seeds quadrangular, ca. 1 mm. long, ovate radially, facets with subregular low transverse ridges often slightly including the angles, coat whitish-brown.—PLATE 662D.

Quebec and Ontario; general in eastern United States, west to North Dakota and Texas; introduced in Oregon, California, and Arizona; introduced in Europe (MAP 34). Representative specimens seen: QUEBEC. Wright Co.: Chelsea, *Macoun 87833* (G). Pontiac Co.: Chichester, *Marie-Victorin, Rolland-Germain & Meilleur 44016* (G). ONTARIO. Ottawa, Broad St. Station, *Macoun 87834* (G); Amherstburgh, *Macoun 88081* (G); Chatham, *Macoun 88088* (G); Niagara Falls, *Macoun 88083* (G); Owen Sound, *Macoun 88086* (G); Port Colborne, *Macoun 88082* (G); Southampton, *Macoun 88087* (G); Windsor, *Macoun 88085* (G); Wooler, *Macoun 88084* (G). MAINE. Androscoggin Co.: Auburn, *E. D. Merrill 1649* (NE). Aroostook Co.: Island Falls, *Fernald 2739* (NE). Cumberland Co.: Portland, *Fernald, Long & Norton 13999* (NE, Ph); Brunswick, Aug. 23, 1910, *Furbish* (NE). Hancock Co.: Schooner Head Road, Bar Harbor, Mount Desert Island, Sept. 18, 1896, *Rand* (NE). Kennebec Co.: Winslow, *Fernald 2736* (NE); Clinton, July 20, 1907, *Bean* (NE). Franklin Co.: Farmington, Sept. 2, 1904, *Knowlton* (NE). Penobscot Co.: Lagrange, *Fernald & Long 13997* (NE, Ph). Piscataquis Co.: Abbot Village, *Fernald & Long 13998* (NE, Ph). Sagadahoc Co.: Bath, July 12, 1912, *Furbish* (NE). Washington Co.: Valley of the St. Croix River, Sept. 1, 1908, *Fernald* (NE). York Co.: Old

Orchard, *Chamberlain 228* (NE); York, Mt. Agamenticus, Aug. 17, 1905, *Chamberlain* (NE). NEW HAMPSHIRE. Cheshire Co.: East Swanzey, *Robinson 539* (G, NE). Coös Co.: Whitefield, *Pease 11616* (NE); Berlin, *Moore 4329* (G). Grafton Co.: Plymouth, Aug. 24, 1916, *Knowlton* (Ph). Hillsboro Co.: Pelham, Sept. 13, 1902, *Knowlton* (G). Merrimack Co.: Aug. 24, 1925, *Batchelder* (NE). Rockingham Co.: Hampton Falls, Sept. 8, 1916, *Batchelder* (NE). VERMONT. Chittenden Co.: Burlington, July 6, 1919, *Knowlton* (Ph). Windham Co.: Bellows Falls, July 18, 1896, *Deane* (NE). Windsor Co.: Windsor, Aug. 22, 1880, *Leland* (NE). MASSACHUSETTS. Barnstable Co.: Harwich, *Fernald & Long 18687* (NE, Ph); Brewster, *Collins 1176* (NE); Yarmouth, *Collins 981* (NE). Berkshire Co.: Stockbridge, July 20, 1919, *Hoffmann* (NE). Bristol Co.: New Bedford, Aug. 5, 1904, *Hervey* (NE). Dukes Co.: Elizabeth Islands, *Fogg 2869* (NE). Essex Co.: Salem, *Forbes 2315* (NE). Hampshire Co.: West Chesterfield, *Robinson 489* (G). Hampden Co.: Springfield, July 15, 1915, *Andrews* (NE). Middlesex Co.: Arlington, *Pease 4704* (NE); Winchester, *L. B. Smith 2496* (NE). Norfolk Co.: Norfolk, *Ware 4138* (NE). Plymouth Co.: Hull, *Rothrock* (NE). Suffolk Co.: Savin Hill Beach, Boston, Aug. 28, 1853, *W. Boott* (G); Revere, Oak Island, July 9, 1882, *Young* (NE). RHODE ISLAND. Newport Co.: Clay Head, Block Island, *Fernald, Long & Torrey 9822* (G, NE, Ph). Providence Co.: Providence, Aug. 20, 1907, *Hope* (G). Washington Co.: Hopkinton, Aug. 30, 1919, *Ware, Woodward & Harger* (NE). CONNECTICUT. Fairfield Co.: Stratford, Fresh Pond, Aug. 15, 1897, *Eames* (NE). Middlesex Co.: Killingworth, Sept. 3, 1874, *Hall* (NE). New Haven Co.: Naugatuck, *Harger 5519* (Ph); South End, New Haven, Long Island Sound, *Castle 104* (NE). New London Co.: Franklin, Oct. 1, 1910, *Woodward* (NE). Tolland Co.: Bolton, *Weatherby 5104* (NE). Windham Co.: Central Village, *Sheldon 514* (NE). NEW YORK. Albany Co.: Albany, Sept. 2, 1908, *Burnham* (G). Bronx Co.: Thorn's Dock, Oct. 2, 1891, *Bicknell* (Ph). Richmond Co.: Port Richmond, Staten Island, *Dowell 6735* (M). St. Lawrence Co.: Canton, *Phelps 636* (G). Tompkins Co.: Ithaca, *Bechtel 8409* (G). Washington Co.: Vaughns, north of Hudson Falls, Aug. 28, 1891, *Burnham* (G). NEW JERSEY. Atlantic Co.: within 1 mile south along Great Egg Harbor River, Catawba, *Long 51184* (G). Burlington Co.: Delanco, *Hermann 3631* (PhB). Camden Co.: Lawnside, *Stone 1077A* (PhB). Cape May Co.: Cape May City, Aug. 2, 1917, *Stone* (PhB). Cumberland Co.: Cumberland, *Long 38946* (PhB). Essex Co.: Watchung Mt., *Pennell 7459* (Ph). Middlesex Co.: Stelton, *Halsted's American Weeds 88* (G, Mo). Ocean Co.: Lakewood, *Hunnewell 8081* (G). Somerset Co.: Watchung, *Moldenke 1303* (Ph). PENNSYLVANIA. Berks Co.: Fleetwood,

Leibelsperger 52 (PhB). Bucks Co.: Grenoble, *Long 4601* (PhB). Chester Co.: Honey Brook, *Benner 5418* (PhB). Columbia Co.: west branch Fishing Creek, 25 miles above Central, *Fosberg 15968* (G). Lebanon Co.: in South Mountain, Penryn, *Heller 669* (G). Lehigh Co.: near Allentown, *Pretz 4842* (PhB). Montgomery Co.: Souderton, *Long 26754* (PhB). Northampton Co.: Northampton, Aug. 17, 1923, *Churchill* (G). Philadelphia Co.: Holmesburg, *Benner 7335* (G, PhB). DELAWARE. New Castle Co.: Newark, Oct. 18, 1923, *Otis* (PhB). Sussex Co.: Rehoboth, Aug. 15, 1895, *Commons* (Ph). DISTRICT OF COLUMBIA: Brookland, Oct. 13, 1915, *Holm* (G); Washington, Aug. 18, 1888, *Holm* (G). VIRGINIA. Amherst Co.: Monroe, Aug. 16, 1899, *Pieters* (US). Arlington Co.: near Ballston, Sept. 20, 1935, *Blake* (W). Bedford Co.: Sept. 25, 1871, *A. H. Curtiss* (G). WEST VIRGINIA. Cabell Co.: Roland Park, *Gilbert 493* (Mo, Ph). Grant Co.: Bayard, *Moore 1950* (G). Greenbrier Co.: White Sulphur Springs, *Hunnewell 2827* (G). Mineral Co.: Keyser, *Moore 1948* (G). Tucker Co.: along Shavers Fork near Parsons, *Greenman 408* (G). NORTH CAROLINA. Buncombe Co.: Biltmore, *Biltmore Herbarium 407b* (G). Cartaret Co.: shore of North River, *Randolph 827* (G). Pender Co.: Hampstead, *Randolph 989* (G). SOUTH CAROLINA. Berkeley Co.: Santee Canal, *Ravenel* (G). Charleston Co.: Charleston, *Fernald & Long 9748* (G). Lancaster Co.: Elgin, *House 2583* (M). Marion Co.: Marion, *Wiegand & Manning 1814* (G). GEORGIA. Whitfield Co.: Dalton, Chickamauga, *Harper 380* (G). FLORIDA. Bradford Co.: Hampton, *Wiegand & Manning 1816* (G). Dade Co.: sand-dunes opposite Miami, *J. K. & G. K. Small 4580* (NY). Duval Co.: *Fredholm 5138* (G). Escambia Co.: Pensacola, 1886, "A. W. Curtiss" (G). Gulf Co.: Apalachicola, *Chapman* (G). Hillsborough Co.: *Fredholm 6469* (G). Lake Co.: near Eustis, *Nash 1058* (G). Lee Co.: Alva, *A. S. Hitchcock 328* (G). Palm Beach Co.: Palm Beach, *Hunnewell 7365* (G). Pinellas Co.: St. Petersburg, *Deam 2797* (G). MICHIGAN. Allegan Co.: *Dohmen 61* (F). St. Joseph Co.: Sturgis, Aug., 1898, *Daniels* (Mo). Washtenaw Co.: Ann Arbor, *Hermann 9115* (G). OHIO. Portage Co.: Garrettsville, *Webb 469* (G). Scioto Co.: Moore's Lane, Friendship, *Demaree 10788* (G). INDIANA. Cass Co.: 2 miles west of Hoover, *Deam 34640* (Ph); 2 miles west of Royal Center, *Deam 29566* (Deam). Clay Co.: six miles east of Brazil, *Deam 37789* (Deam). Elkhart Co.: 4 miles north of Elkhart on Simonton Lake, *Deam 52954* (Deam). Jasper Co.: 5 miles east of Wheatfield, *Deam 26533* (Deam). Lake Co.: north side of Cedar Lake, *Deam 21389* (Deam). Marion Co.: Pine, *Umbach 2315* (G). Morgan Co.: north of Martinsville, along Traction Line, *Deam 13935* (Deam). Noble Co.: north side of Waldron Lake on Orange Township, Aug. 9, 1905, *Deam* (Deam). Parke Co.: 1/2 mile

west of Bloomingdale, *Deam 41921* (Deam). Pike Co.: 1 mile west of Cato, *Deam 52655* (Deam). Porter Co.: northwest of Porter, *Lansing 1636* (Ph). Pulaski Co.: 2½ miles southeast of Denham, *Deam 29862* (Deam). St. Joseph Co.: South Bend, *Nieuwland 11736* (M). Starke Co.: 3 miles west of North Judson, *Deam 32212* (Deam). Sullivan Co.: 5 miles southeast of Sullivan, *Deam 25691* (Deam). Tippecanoe Co.: 2 miles south of Battle Ground, *Deam 49615* (Deam). Warren Co.: 7 miles west of Williamsport, *Deam 37890* (Ph). Washington Co.: 6 miles west of Pekin, *Deam 18980* (Deam). White Co.: bank of Tippecanoe River, 2 miles northeast of Monticello, *Deam 32671* (Deam, G). KENTUCKY. Harlan Co.: near Poor Fork Post Office, *Kearney 156* (G). Kenton Co.: Banklich Creek, Sept. 25, 1838 (Ph). TENNESSEE. Davidson Co.: campus of Peabody College, Nashville, *Svenson 137* (G). ALABAMA. Jefferson Co.: west side of Library, Birmingham, *H. E. Wheeler 140* (G). Lee Co.: Auburn, *Earle 35* (G). Tuscaloosa Co.: Tuscaloosa, Sept., 1898, *Mohr* (US). MISSISSIPPI. Harrison Co.: Biloxi, *Pollard 1155* (G). Panola Co.: Sept. 17, 1896, *Eggert* (M). WISCONSIN. Iowa Co.: Wyoming, *Fassett 12574* (M). Milwaukee Co.: Milwaukee, *Ogden 7* (F). Pierce Co.: Prescott, *Fassett 10287* (Deam); Bay City, *Fassett & Wilson 10281* (G). ILLINOIS. Champaign Co.: Champaign, *Gleason 1932* (G). Cook Co.: Stony Island, *H. H. Smith 5979* (G, M, Ph). Hancock Co.: Augusta, Aug., 1859, *Mead* (G); Augusta, Sept. 21, 1860, *Mead* (G). Henry Co.: Atkinson, Aug., 1921, *Ledman* (M). Kankakee Co.: Altorf Island in Kankakee River, *Lansing & Sherff 5* (G). La Salle Co.: Ottawa, *Juett* (G). Peoria Co.: Peoria, Aug., 1903, *McDonald* (G). Richland Co.: Olney, *Ridgway 3133* (Ph). Stark Co.: Wady Petra, *V. H. Chase 696* (Ph). Vermilion Co.: Muncie, *Pease 14104* (G). Winnebago Co.: South Beloit, *Wadmond 2943* (G). MINNESOTA. Chisago Co.: Taylors Falls, Sept., 1893, *Ballard* (Mi). Goodhue Co.: Burntside, *Anderson 777* (Mi). Hennepin Co.: Fort Snelling Reservation, *Rosendahl 2332* (Mi). Houston Co.: Jefferson, *W. A. Wheeler 430* (Mi). Hubbard Co.: Itasca Park, *Moyle 762* (Mi). Lincoln Co.: Lake Benton, *Sheldon 1560* (Mi). Pipestone Co.: Pipestone, Aug. 11, 1925, *Peterson* (Mi). Scott Co.: Cleary's Lake, *Ballard 526* (Mi). Wabasha Co.: Brook Lodge, Aug. 15, 1904, *Roberts* (Mi). Washington Co.: Afton, Sept., 1919, *Butters* (Mi). Winona Co.: Latsch Island, Winona, *Fassett 3413* (G). IOWA. Dallas Co.: Aug. 2, 1867, *Allen* (G). Fayette Co.: Fayette, July, 1894, *Fink* (G). Story Co.: Ames, Sept., *Pammel 34* (G). MISSOURI. Barry Co.: White River at Cutner Ford 2 miles northwest of Golden, *Steyermark 19543* (M, Mo). Boone Co.: Columbia, *Drouet 1012* (Mo). Cole Co.: Jefferson City, Aug., 1871, *Krause* (M). Cooper Co.: *Bush 15125* (Mo). Dunklin Co.: Campbell, Oct. 23, 1893, *Bush* (M). Franklin Co.:

Gray Summit, *Kellogg 1845* (M). Henry Co.: July 3, 1892, *Link* (Mo). Jackson Co.: Courtney, *Bush 7068* (G). Jefferson Co.: 4 miles southwest of Pevely, *Steyermark 506* (M). Laclede Co.: Fork of Gasconade River 1 mile west of Dry Knob, *Steyermark 13925* (Mo). Marion Co.: Hannibal, *Davis 1419* (M). Saint Clair Co.: 1 mile north of Collins, Oct. 4, 1930, *Drouet* (Mo). St. Louis Co.: Jefferson Barracks, *Bartram 3053* (Ph). Saline Co.: below Glasgow Bridge on Highway 20, *Drouet 1607* (Mo). ARKANSAS. Crawford Co.: Van Buren, *Demaree 15278* (W). Drew Co.: Monticello, *Demaree 13521* (W). Garland Co.: 8 miles east of Hot Springs, *Scully 284* (G). Grant Co.: Saline River, Poyen, *Demaree 16331* (W). Hempstead Co.: Tokio, *Demaree 9931* (G, M). Hot Springs Co.: Malvern, *Demaree 16298* (Mo, W). Jefferson Co.: Pine Bluff, *Demaree 15407* (W). Montgomery Co.: Caddo Gap, Small Creek, *Demaree 9582* (M, Ph). Polk Co.: Mena, *Demaree 16057* (W). Pope Co.: Russellville, *Demaree 15334* (W). Prairie Co.: White River Ridges, de Valls Bluff, *Demaree 15736* (W). Pulaski Co.: Little Rock, *Demaree 8202* (M). Scott Co.: Mansfield, *Demaree 18180* (W). LOUISIANA. Boissier Co.: Alden Bridge, 1898, *Trelease* (M). Caddo Co.: Shreveport, Sept. 20, 1847, *Gregg* (Ph). Plaquemines Co.: Port Eads, *Tracy & Lloyd 209* (G, Ph). Terrebonne Co.: Houma, on Little Temple, *Wurzlow* (F). NORTH DAKOTA. Cass Co.: Fargo, Oct. 16, 1911, *Waldron* (G, Ph). NEBRASKA. Kearney Co.: Minden, Aug. 27, 1929, *Hapeman* (Ph). Nemaha Co.: Peru, *Michels 419* (O). Otoc Co.: Nebraska City, Aug., 1898, *Thornber* (M). Webster Co.: Blue Hill, *Bates 5025* (G). KANSAS. McPherson Co.: Lindsborg, June, 1884, *Bodin* (F). Riley Co.: *Norton 471* (G). OKLAHOMA. Alfalfa Co.: near Goltry, *G. W. Stevens 1334.1* (G). Creek Co.: Sapulpa, *Bush 536* (M). Harmon Co.: Hollis, *G. W. Stevens 1054* (G). Le Flore Co.: Stapp, *Demaree 16041* (W). Mayes Co.: near Mazie, *G. W. Stevens 2584* (G). Oklahoma Co.: near Oklahoma City, *White 1145* (G). Osage Co.: near Copan on Coon Creek, *G. W. Stevens 2170* (G). Ottawa Co.: near Miami, *G. W. Stevens 2307* (G). Pawnee Co.: Pawnee, Aug. 31, 1933, *Coffman* (Mo). Woods Co.: near Alva, *G. W. Stevens 1603* (G). TEXAS. Anderson Co.: Palestine, Oct. 21, 1884, *Joor* (M). Aransas Co.: 5 miles east of Rockport, *Cory 20383* (G). Burnet Co.: Bluffton, 1879, *Ed. Palmer 1198* (G). Chambers Co.: $5\frac{3}{4}$ miles south of Anahuac, *Cory 22451* (G). Fayette Co.: $\frac{3}{4}$ miles south of Monument Hill, *Cory 10046* (G). Gillespie Co.: Bear Mt., *Cory 24574* (G). Grayson Co.: Denison, Sept. 30, 1933, *Rotchslein* (M). Harris Co.: Houston, *Hall 569* (G); Houston, 1842, *Lindheimer* (G). Kerr Co.: Kerrville, *Heller 1921* (Ph). Matagorda Co.: $2\frac{1}{2}$ miles west of Gulf, *Cory 11547* (G). Nueces Co.: Corpus Christi, *Heller 1804* (G, Ph). Parker Co.: Weatherford, *Tracy 7858* (Mo).

Uvalde Co.: Uvalde, 90 miles northwest of San Antonio, 1879, *Ed. Palmer 1202* (G). Valverde Co.: Devils River, *Orcutt 6074* (M). Walker Co.: 14 miles southwest of Huntsville, *Cory 10224* (G). Wharton Co.: Pierce, *Tracy 7436* (G). Williamson Co.: Georgetown, 1879, *Ed. Palmer 1202* (Ph). Wilson Co.: 5 miles east of Floresville, *Cory 11812* (G). ARIZONA. Greenlee Co.: 6 miles north of Metcalf, *Maguire, Richards & Moeller 11808* (G, I). Pima Co.: Tucson, July 19, 1934, *Thornber* (T). OREGON. Jackson Co.: Ashland, *T. Howell 720* (G). Josephine Co.: Grants Pass, *J. Howell & T. J. Howell 787* (G). CALIFORNIA. Siskiyou Co.: Yreka, *L. C. Wheeler 3652* (G, W). Shasta Co.: below Redding, *Heller 14802* (NY). Calaveras Co.: South Fork Calaveras River, Kentucky House, Sierra Nevada, *Jepson 10042* (J). Butte Co.: Chico, *W. H. Wheeler 296* (W). Alameda Co.: West Berkeley, July, 1891, *Michener & Bioletti* (J). Ventura Co.: Ventura, *Abrams 4132* (G, Ph). Los Angeles Co.: Pasadena, *Grant 427* (J). Riverside Co.: Santa Ana River at Chino Creek, *L. C. Wheeler 1330* (W). San Bernardino Co.: Colton, *M. E. Jones 3201* (I). San Diego Co.: San Diego, *Spencer 970* (G).

E. thymifolia β *disticha* Nutt., Trans. Amer. Philos. Soc., n. s. **5**: 171. 1837. TYPE: "Hab. Banks of the Mississippi and Arkansas" (Ph? or British Mus.), not located. This variety may well belong here but no authentic material has been located.

E. maculata L. β *detonsa* Engelm. ex. Boiss. in DC. Prod. **15** (2): 47. 1862. TYPE: "In civitatibus australioribus Amer. bor. (Engelm.)" (M? or Ge?), not located. This variety probably belongs here but no authentic material found.

There is one glabrous collection of *E. supina*: Cameron, Cameron Co., Louisiana, July 4, 1903, *Tracy 8477a* (G, M).

It may be that authentic material of *E. supina* Raf. exists at Geneva. Boissier in DC. Prod. **15** (2): 47. 1862, appears to have taken the name from *exsiccatae* rather than from the article in the American Monthly Magazine, for no page is cited and Boissier does not mention the other two *Euphorbiae* that appeared in the same article. Thellung in Ascherson & Graebner, Syn. Mitteleur. Fl. **7**: 471. 1917, cites "*E. supina* Rafin.!" which makes it appear that he has examined the Rafinesquean specimen at Geneva.

For discussion of the history of the misapplication of the name *E. maculata* L. see Contr. Gray Herb. **127**: 74-76. 1939.

The identity of the Linnaean specimen of *E. thymifolia* L. has not been investigated. In view of the very close relationship between the entity to which that name has been applied and *E.*

supina it is entirely possible that *E. thymifolia* might be applicable to the entity here called *E. supina*.

The identity of *E. supina* seems beyond question. It is the only prostrate pilose *Euphorbia* with opposite leaves and vestite capsules occurring in the area mentioned by Rafinesque.

46. EUPHORBIA HUMISTRATA Engelm. ex Gray, Man. Bot. No. U. S., ed. 2, 386. 1856. TYPE: banks of the Mississippi, St. Louis, Missouri, July, 1833, *Geo. Engelmann 1139* (M 149873!; photographs G! W!). Boiss. in DC. Prod. **15** (2): 44. 1862.—*Anisophyllum humistratum* (Engelm.) Klotzsch & Garke, Abh. Akad. Berlin, Phys. **1859**: 26. 1860.—*Chamaesyce humistrata* (Engelm.) Small, Fl. Se. U. S., 713, 1333. 1903.

Annual; stems prostrate to ascending, crisply and sparsely villous, sometimes glabrate below, to 35 cm. long, internodes mostly 1–3 cm. long; leaf-blades oval to oblong-ovate on the main stems, often narrower and much reduced on the branchlets, 4–14 mm. long, mostly glabrous above, sparsely crisply villous but glabrate below, margin entire to remotely serrulate, base strongly inequilateral; petioles 1–1.5 mm. long; stipules distinct to united, triangular, attenuate, 1–1.5 mm. long, mostly with linear divisions, ciliate; peduncles ca. 1 mm. long, crisply hairy to glabrate; cyathia solitary at the nodes or, more commonly, in dense clusters on short lateral branches; involucre obovate, 0.6–0.8 mm. in diam., villous outside, essentially glabrous inside; lobes triangular, attenuate, slightly exceeding the glands; glands mostly transversely oblong to elliptical, sometimes subcircular, 0.15–0.3 mm. long; appendages narrow, white to pink, crenulate to entire; fifth gland linear, ca. $\frac{1}{2}$ as long as the lobes; sinus U-shaped, wide, depressed fully halfway to base of involucre; bracteoles minute, linear; staminate flowers 3–5 per cyathium; androphores glabrous, ca. 1.3 mm. long; gynophore slightly vestite above, barely exerted, mostly reflexed; ovary 3-lobed, densely strigose; styles glabrous, ca. 0.7 mm. long, ca. $\frac{1}{2}$ bifid, slender; capsule strigose, sometimes partially glabrate, sharply 3-angled; 1.3–1.4 mm. long, wider below the equator; seeds quadrangular, 0.9–1 mm. long, 0.7–0.8 mm. tangentially, 0.6–0.7 mm. radially, radially broadly ovate, facets nearly smooth, coat brown, granular.—PLATE 662C.

Ohio west to Illinois and Kansas, south to Alabama, west to extreme northeastern Texas; adventive in Virginia (MAP 40). Representative specimens seen: VIRGINIA. Henrico Co.: railroad ballast, Richmond, Fredericksburg and Potomac Railroad, Richmond, *Fernald & Long 12708* (W); waste places and railroad ballast, South Richmond, *Fernald & Long 12709* (W). OHIO. Champaign Co.: Sept. 10, 1892, *Werner* (NY, Ph).

Hamilton Co.: near Cincinnati, *Lloyd 2485* (Ph). INDIANA: Crawford Co.: bank of Ohio River in Leavenworth, *Deam 48035* (Deam). Dearborn Co.: bank of Ohio River in Aurora, *Deam 41122* (Deam). Dubois Co.: Hunnely bottom, 2 miles east of Huntingburg, *Deam 42635* (Deam). Gibson Co.: swamp 3 miles south of Mt. Carmel, Ill., *Deam 24230* (Deam). Greene Co.: swamp 1 mile north of Newberry, *Deam 24101* (Deam). Harrison Co.: bank of Ohio River 4 miles southeast of Laconia, *Deam 41514* (Deam). Jackson Co.: 6 miles north of Crothersville, *Deam 38092* (Deam). Jefferson Co.: bank of Ohio River 4 miles east of Madison, *Deam 40038* (Deam). Knox Co.: bank of White River near its mouth, *Deam 26597* (Deam, NY). Ohio Co.: bank of the Ohio River at the ferry in Rising Sun, *Deam 50800* (Deam). Perry Co.: bank of Ohio River 6 miles east of Cannelton, *Deam 26745* (Deam). Posey Co.: bank of Wabash River 2 miles below New Harmony, *Deam 24270* (Deam, NY). Sullivan Co.: bank of ditch 6 miles northwest of Carlisle, *Deam 51438* (Deam). Switzerland Co.: bank of Ohio River in Vevay, *Deam 50817* (Deam). Vermillion Co.: bank of creek $1\frac{1}{2}$ miles northwest of Eugene, *Deam 51351* (Deam). Vigo Co.: Greenfield Bayou 9 miles west of Pimento, *Deam 23989* (Deam). Warrick Co.: bank of Big Pigeon Creek 6 miles west of Boonville, *Deam 24344* (Deam). ILLINOIS. Menard Co.: Athens, 1863, *Hall* (M). Peoria Co.: Illinois River bottomlands near Peoria, Aug., 1903, *McDonald* (NY). Rock Island Co.: Rock Island, Aug. 10, 1866, *Engelmann* (M). St. Clair Co.: Sept. 10, 1886, *Eggert* (G, M, NY). KENTUCKY: Lyon Co.: Kuttawa, *Eggleston 5246* (M, NY). Kenton Co.: Banklick Creek, Aug. 30, 1834, *T. G. Lea Herb.* (Ph). TENNESSEE. Davidson Co.: along Cumberland River, near Nashville, *Gattinger 2485* (G, M, Ph). ALABAMA: Autauga Co.: bank of Alabama River at House Bluff, *Harper 40* (G, NY, Ph). MISSISSIPPI. Warren Co.: Vicksburg, *Demaree 14111* (W). MISSOURI. Barry Co.: White River, Sept. 22, 1896, *K. K. Mackenzie* (NY). Bates Co.: Osage River at bridge south of Amoret, *Steyermark 20281* (M). Clark Co.: 2 miles west of Gregory Landing, Sept. 6, 1934, *Drouet* (G, M, Mo). Cole Co.: Osage River lock, *Rickett 1134* (Mo). Cooper Co.: 10 miles southwest of Boonville & south of Lanvine, *Steyermark 15910* (M, Mo). Jackson Co.: Sheffield, *Bush 12324* (M, NY). Jefferson Co.: Kimmswick, Sept., 1868, *Engelmann* (M). Laclede Co.: Osage Fork of Gasconade River, *Steyermark 13931* (M, Mo). New Madrid Co.: near La Forge, *Steyermark 8843* (M). Perry Co.: Mississippi River, $1\frac{1}{2}$ miles north of Wittenburg, *Steyermark 14085* (M, Mo). Pulaski Co.: along Gasconade River between Laquey and Richland, *Steyermark 19867* (M). St. Clair Co.: $3\frac{1}{2}$ miles north of Iconium at Wagon Ford, *Steyermark 24317* (NY). St. Louis Co.: junction of Missouri and Mississippi

Rivers on island, *Steyermark 19716* (M). ARKANSAS. Chicot Co.: Eudora, near La Fourche Lake, *Demaree 18575* (W). Drew Co.: Monticello, *Demaree 18410* (W). Lincoln Co.: Bayou Bartholomew, York Town, *Demaree 13729* (M, NY). Prairie Co.: De Valls Bluff on White River bottoms, *Demaree 15521* (NY). Pulaski Co.: along Arkansas River at Little Rock, *Demaree 8328* (G, NY). LOUISIANA. Terrebonne Co.: Houma, Aug. 21, 1912, *Wurzlow* (NY). KANSAS. Miami Co.: Paola, Sept. 19, 1885, *Oyster* (NY). OKLAHOMA. Nowata Co.: Lenapah, *G. W. Stevens 2182* (G, NY). Ottawa Co.: bar by Neosleo River, near Miami, *G. W. Stevens 2309* (G, M, NY). Rogers Co.: Verdigris, *Bush 537* (G, M, NY). TEXAS. Bowie Co.: Texarkana, May 9, 1891, *Plank* (NY).

This species seems to grow usually on river flats, judging by the meager habitat-data given by collectors on their labels. Some specimens are difficult to place definitely in *E. humistrata* for it approaches *E. supina* very closely. Reports of *E. humistrata* from states other than those from which specimens are cited above are probably based on misidentifications of *E. supina*.

47. EUPHORBIA STICTOSPORA Engelm. in Emory, U. S. & Mex. Bound. Surv. **2** (1): 187. 1859. TYPE: steep bank of the Pawnee River ("fork"), in loose soil, Kansas, Sept. 8, 1847, *A. Fendler 798* (M 200482!; photographs G!, W!). (Type designated by Millspaugh, Bot. Gaz. **26**: 266. 1898.) Boiss. in DC. Prod. **15** (2): 41. 1862.—*Chamaesyce stictospora* (Engelm.) Small, Fl. Se. U. S., 714, 1334. 1903.

Anisophyllum senile Klotzsch & Garcke, Abh. Akad. Berlin, Phys. **1859**: 28. 1860. TYPE: Los Baños, Mexico, *C. Ehrenberg* (B!; photographs G!, W!; ISOTYPE M!).

Annual; stems prostrate to ascending, crisply villous, 5–25 cm. long, internodes mostly 1–2 cm. long on the main stems; leaf-blades suborbicular, ovate, oblong-acute to oblong-linear and obovate, 3–10 mm. long, sparsely crisply hairy and glabrate above, similarly but more densely and permanently vestite beneath, margin sharply serrate, base oblique; petioles ca. 1 mm. long; stipules triangular, often attenuate, distinct or united, sometimes divided, ca. 1 mm. long, sparsely hairy; cyathia solitary at the nodes but mostly on congested short densely leafy lateral branches; peduncles mostly 1–2 mm. long, pubescent; involucre obconical, tapering to the peduncle, 0.7–1 mm. in diam., pubescent outside, essentially glabrous inside; lobes triangular, ciliate, about equaling the glands; glands transversely oblong to elliptical or even subcircular, 0.15–0.3 mm. long; appendages narrow, glabrous, white, entire to crenulate or even sharply toothed; fifth gland from a mere apiculation to a linear

segment half as long as the lobes; sinus narrowly U-shaped, depressed ca. $\frac{1}{3}$ to base of involucre; bracteoles minute, linear; staminate flowers 3–7 per cyathium; androphores glabrous, 0.9–1 mm. long; gynophore glabrous below, crisply hairy above, exserted and mostly reflexed; ovary 3-lobed, densely strigose; styles ca. 0.2 mm. long, expanded at the apex, entire to deeply emarginate; capsule 1.4–1.9 mm. long, 3-angled, widest near the base, strigose, the basal angles with spreading hairs; seeds sharply quadrangular, 1.2–1.4 mm. long, 0.7–0.8 mm. tangentially, ca. 0.6 mm. radially, radially narrowly ovate to oblong-ovate, base truncate, apex acute, facets with shallow irregular pits to subregular low transverse ridges, coat mottled whitish brown and brown, the bottom of the pits darker colored than the ridges.—PLATE 662B.

South Dakota and Wyoming, south to Chihuahua, Coahuila, Durango, and Zacatecas, west to Arizona (MAP 28). Representative specimens seen: SOUTH DAKOTA. Fall River Co.: Hot Springs, Aug. 27, 1909, *Petersen* (NY). Stanley Co.: Missouri Valley near Fort Pierre, June 19, 1839, *Geyer* in part (US). Black Hills, Aug., 1893, *Thornber* (M). NEBRASKA. Dawes Co.: Whitney, Aug., 1890, *Bates* (G). Webster Co.: Red Cloud, July 22, 1904, *Bates* (G). KANSAS: Ellis Co.: near Hays, *Rydberg & Imler 1244* (NY). Graham Co.: Bogue, *Imler 5* (NY). Greeley Co.: near Tribune, *Rose & Fitch 17086* (NY). Hamilton Co.: 5 miles east of Kendall, *Rydberg & Imler 1065* (M, NY). Lincoln Co.: A. S. *Hitchcock 472a* (G, M, NY). Logan Co.: on Turkey Creek, east of McCallaster, *Rydberg & Imler 1153* (NY). Meade Co.: Meade, Aug., 1892, A. S. *Hitchcock* (NY). Osborne Co.: Osborne City, *Shear 119* (G). Riley Co.: hills, *Norton 472* (G, M, NY). Rooks Co.: Rockport, July 20, 1889, *Bartholomew* (M). Seward Co.: Liberal, July, 1892, A. S. *Hitchcock* (NY). Wyandotte Co.: Wyandotte, Aug. 16, 1896, *Mackenzie* (NY). OKLAHOMA. Blaine Co.: near Canton, *G. W. Stevens 835* (G). Texas Co.: 25 miles southeast of Guymon, *Stratton 459* (M). Woods Co.: Alva, *G. W. Stevens 1602* (G, NY). TEXAS: Brewster Co.: frequent on Sul Ross Campus, Alpine, *Warnock T589* (US). Culberson Co.: Walker Ranch, *Cory 1941* (G). El Paso Co.: El Paso, *M. E. Jones 4195* (G, I, NY in part, O). Gaines Co.: 3.9 miles south of Seminole, *Cory 16617* (W). Hudspeth Co.: Eight Mile Well, *Cory 1946* (G). Kerr Co.: 5.8 miles southeast of Mountain Home, *Cory 19317* (G). Martin Co.: Stanton, June 14, 1900, *Eggert* (M). Pecos Co.: $5\frac{1}{4}$ miles southeast of Fort Stockton, *Cory 15295* (W). Reeves Co.: *Cory 1949* (G). Ward Co.: Barstow, *Tracy 8169* (G, M, Mo, NY). WYOMING: Laramie Co.: Cheyenne, *Nelson 2727* (G, M, NY). COLORADO. Fremont Co.: below Canyon City, *M. E. Jones 786* (I, M, NY). Larimer Co.: Fort Collins, *Anonymous 4020* (NY). Otero Co.: 15 miles northeast

of La Junta, *Rollins 1876* (M, NY, W). Pueblo Co.: Pueblo, *Baker, Earle & Tracy 6* (G, M, NY). Weld Co.: Sec. 18, T.10 N, R.65 W, *Muir 149* (G). Yuma Co.: Wray, 1907, *Shantz* (NY). NEW MEXICO. Catron Co.: Beaverhead, Datil Forest, *Eggleston 20424* (G). Chaves Co.: south of Rosswell, *Earle 290* (M). Doña Ana Co.: Mesilla Valley, *Wooton & Standley 3273* (M). Lincoln Co.: Gray, *Skehan 51* (G, NY). Santa Fe Co.: Santa Fe at base of hills, *Fendler 797* (G, M). San Miguel Co.: near Pecos, *Standley 4939* (G, M, NY). Sierra Co.: Kingston, *Metcalf 1006* (M). ARIZONA: Cochise Co.: Douglas, *Thornber 7111* (T); near Douglas, *Harrison & Kearney 6114* (US); Paradise, Chiricahua Mts., *Blumer 1690* (G, M, NY, US); Benson, *Harrison 8224* (US); Bisbee, Aug. 28–30, 1910, *Pilsbry* (Ph). Pima Co.: Rosemont, Santa Rita Mts., *Thornber 9055* (T). Santa Cruz Co.: near Nogales, *Peebles, Harrison, & Kearney 5564* (US); Patagonia Mts., *Kearney & Peebles 10140* (US). MEXICO: CHIHUAHUA: near Chihuahua, *Pringle 327* (G, US); southwest of El Paso, near Comalitos, *Thurber 731* (G, M). COAHUILA: 1 mile south of Hermanas, *Johnston 7061* (G); 4 miles east of Cuatro Ciénegas, *Johnston 7123* (G); Saltillo, Nov. 2–5, 1898, *Ed. Palmer 567* (G, US); Torreon, Oct. 13–20, 1898, *Ed. Palmer 489* (G, US); Jimulco, *Pringle 80* (G, US); Ramos Arizpe between Hipolito and Sacramento, *Wynd & Mueller 77* (G, M, US). SAN LUIS POTOSI: near San Luis Potosi, *Parry & Ed. Palmer 817½* (G, M). ZACATECAS: 5 miles south of Majoma, *Johnston 7387* (G); near Conception del Oro, Aug. 11–14, 1904, *Ed. Palmer 319* (G). DURANGO: 26 miles west of Mapimi, *Johnston 7779* (G); Santiago Papasquiaro, Apr. & Aug., 1896, *Ed. Palmer 43* (G, M, US); Tepehuanes, June 4–25, 1906, *Ed. Palmer 299* (US).

48. EUPHORBIA CHAMAESYCE L., Sp. Pl. 1: 455. 1753. TYPE: Jamaica, *P. Browne* (Linnaean Herb., not seen; photograph F!, W!; fragment F!, the right-hand specimen). An average member of the species.—*Tithymalus Chamaesyce* (L.) Moench, Meth. Pl., 666. 1794.—*Anisophyllum Chamaesyce* (L.) Haw., Syn. Pl. Succ., 160. 1812.—*E. Chamaesyce* L. A. *eu-chamaesyce* Thellung in Ascherson & Graebner, Syn. Mitteleur. Fl. 7: 454. 1917.

E. prostrata Aiton, Hort. Kew. 2: 139. 1789. TYPE: "Nat[ive] of the West Indies. *Cult.* 1758, by Mr. Philip Miller" (British Museum if extant.) Boissier in DC. Prod. 15 (2): 47. 1862; Boissier, Icon. Euph., t. 17. 1866, poor; Fiori & Paoletti, Fl. Ital. Illustr., 303, t. 2572. 1901¹; Thellung, Bull. Herb. Boiss., ser. 2, 7: 768–770. 1907; Thellung in Ascherson & Graebner, Syn. Mitteleur. Fl. 7: 476–479. 1917.—*E. serpillacea* Willd. ex Klotzsch & Garcke, Abh. Akad. Berlin, Phys. 1859: 26. 1860, as

¹ Date fide Thellung, Bull. Herb. Boiss., ser. 2, 7: 769. 1907.

synonym of *Anisophyllum prostratum*, and Baillon, *Adansonia* **1**: 116. 1860–1861 as synonym of *E. prostrata*.—*Anisophyllum prostratum* (Aiton) Klotzsch & Garcke, *Abh. Akad. Berlin, Phys.* **1859**: 26. 1860.—*Tithymalus prostratus* (Aiton) Bubani, *Fl. Pyren.* (ed. Penzig) **1**: 116. 1897.—*Chamaesyce prostrata* (Aiton) Small, *Fl. Se. U. S.*, 713, 1333. 1903.

E. callitrichoides HBK., *Nov. Gen. et Sp.* **2**: 52 (quarto). 1817. TYPE: Vera Cruz, Mexico (Herb. Mus. Paris, not seen; photograph G!). Referred here, apparently correctly, by Boiss. in DC. *Prod.* **15** (2): 47. 1862.

E. tenella HBK., *Nov. Gen. et Sp.* **2**: 53 (quarto). 1817. TYPE: ad Ripas Orinoci prope Maypures et Carichana, Venezuela (Herb. Mus. Paris, not seen; photograph G!; fragment of ISOTYPE from Berlin at M!).

E. prostrata β *vestita* Engelm. ex Boiss. in DC. *Prod.* **15** (2): 47. 1862. TYPE: New Orleans, Louisiana, *Hale* (Ge!; photographs G!, W!). Scarcely more vestite than usual and of no consequence.

E. stictospora Engelm. var. *texensis* Millsp., *Bot. Gaz.* **26**: 266. 1898. TYPE: southern Texas, 1894, *Heller 1913* (F 196483!).—*Chamaesyce stictospora guadalupensis* Small, *Fl. Se. U. S.*, 714, 1334. 1903.—*C. stictospora* var. *texensis* (Millsp.) Fedde in *Just, Bot. Jahrb.* **32** (1): 368. 1905.

Chamaesyce malaca Small, *Fl. Se. U. S.*, 713, 1333. 1903. TYPE: Kerrville, Kerr County, Texas, June 26–30, 1894, *A. A. Heller 1918* (NY!; photographs G!, W!; ISOTYPES F!, G!, M!).—*E. malaca* (Small) Little in *Jeffs & Little, Univ. Okla. Biol. Surv. Pub.* **2** (2): 70. 1930 (Prelim. List Ferns & Seed Pl. Okla.).

Boiss. in DC. *Prod.* **15** (2): 47. 1862, lists two additional extralimital synonyms which have not been confirmed.

Annual; stems prostrate to decumbent, few to several, mostly 1–1.5 mm. thick, crisped-hairy to glabrate, at least the young tips vestite and often subtomentose, internodes rarely up to 4 cm. long, average on main stems about 1 cm. long, on short lateral branchlets shortened to as little as 2 mm.; leaf-blades broadly elliptical to elliptic-oblong, obovate-spatulate or even ovate, 3–11 mm. long, mostly 4–8 mm. long, margin often serrulate, base mostly inequilateral, upper surface mostly glabrous, lower surface finely and crisply hairy, often glabrate; petioles ca. 1 mm. long; stipules with short hairs, triangular-subulate, often lacerate above, 0.5–1 mm. long, dorsal usually distinct, ventral often united; peduncles 1–2 mm. long, with short hairs or sometimes glabrous; cyathia solitary at the nodes but mostly on short-noded lateral branchlets; involucre 0.6–0.9 mm. in diam., obconical, tapering to the peduncle, with scattered crisped hairs or glabrous outside, glabrous inside except on the lobes and stipes; lobes rounded-triangular, about equaling the glands, hairy; glands transversely oval to oblong,

0.15–0.3 mm. long, usually depressed in the middle; appendages white, glabrous, from about as wide as to twice as wide as the gland; sinus U-shaped, somewhat depressed, glabrous in the lower half; fifth gland filiform, $\frac{1}{4}$ – $\frac{2}{3}$ as long as the lobes; bracteoles nearly wanting, reduced to 2–3, glabrous, filiform; staminate flowers 4 per cyathium; androphores glabrous, 0.9–1.1 mm. long; gynophore hairy above or glabrous, exserted and usually reflexed; ovary roundly 3-lobed, densely white-hairy; styles bifid nearly to the base, 0.2–0.3 mm. long, glabrous, slightly clavate; capsule sharply 3-angled, 1–1.4 mm. long, wider below the equator, with crisped hairs persistent on the backs of the carpels but more or less deciduous on the sides; seeds sharply quadrangular, 0.9–1 mm. long, 0.6–0.7 mm. tangentially and radially, radially ovate, facets traversed by low narrow slightly irregular ridges which scarcely pass through the angles, ventral facets concave, dorsal plane to convex, coat white, microreticulate, often little concealing the brown to gray testa.—PLATES 660C and 668A.

Introduced in Massachusetts and Virginia; South Carolina, Florida, Alabama, Louisiana, Missouri, Nebraska, Oklahoma, Texas, and Arizona; introduced in the Old World (MAP 44). Representative specimens seen: MASSACHUSETTS. Middlesex Co.: Malden, on cotton waste, Sept. 20, 1890, *Collins* (NE). VIRGINIA. James City Co.: Williamsburg, stone steps of old house, *Grimes 4640* (G, NY). SOUTH CAROLINA. Charleston Co.: Charleston, *B. L. Robinson 237* (G). FLORIDA. Nassau Co.: Fernandina, Oct. 29, 1890, *A. S. Hitchcock* (M). Duval Co.: Jacksonville, 1880, *Curtiss* (M). St. Johns Co.: streets in St. Augustine, *Curtiss 6426* (G, M, NY). Volusia Co.: Green Mound (shell-midden) 5 miles south of Daytona Beach, *J. K. Small, J. W. Small & DeWinkeler 10568* (NY). Monroe Co.: Garden Key, Dry Tortugas, *Lansing 2502* (NY). Lee Co.: shell mounds, Marco, *A. S. Hitchcock 318* (G, M, NY). Leon Co.: sidewalk on Tennessee St., Tallahassee, July 13, 1926, *Harper* (NY). Gulf Co.: Apalachicola, "Herb. Chapman" (M, NY). ALABAMA. Jefferson Co.: Birmingham, in garden on 7th St. S., *H. E. Wheeler 1209* (G, NY). Montgomery Co.: on slag ballast on L. & N. Railroad about 2 miles southwest of Montgomery, *Harper 30* (G, NY, Ph). Mobile Co.: Mobile, *Dukes 11* (G). MISSOURI. Jackson Co.: Courtney, *Bush 8630* (NY). LOUISIANA. Rapides Co.: near Alexandria in cultivated ground, not common, *Ball 637* (G, M, NY). Orleans Co.: streets of New Orleans, *Hale* (M). Terrebonne Co.: Houma, July, 1912, *Wurzlów* (NY). NEBRASKA. Kearney Co.: Minden, Sept. 1, 1933, *Hapeman* (NY). Harlan Co.: Orleans, *Bates 3633* (NY). OKLAHOMA: Kay Co.: Tonkawa, *G. W. Stevens 1864* (G). Woods Co.: near Fairvalley, *G. W. Stevens 1640* (G). Blaine

Co.: near Canton, *G. W. Stevens 833* (G, M). Rogers Co.: Verdigris, *Bush 537* (G, NY). Oklahoma Co.: Oklahoma City, north Canadian River bottom, *Demaree 13252* (G, NY). Murray Co.: Turner Falls, Arbuckle Mountains, *Demaree 13204* (NY). Comanche Co.: near Fort Sill, *J. Clemens 11674* (G, M). TEXAS. Anderson Co.: Palestine, *Cory 25414* (G). Austin Co.: in clayey soil near Industry, July, 1844, *Lindheimer* (G, M). Bexar Co.: San Antonio, *Wilkinson 52* (M). Calhoun-Matagorda Co.: Matagorda Bay, *Robbins 10* (M). Cameron Co.: Harlingen, *Tracy 9123* (G, M, NY). Colorado Co.: Columbus, common along river, *Bush 431* (G, M, NY). Comal Co.: New Braunfels, 1846, June, *Lindheimer III, 533* (G, M). Dallas Co.: Dallas, June, 1874, *Reverchon* (G). Duval Co.: San Diego, *Croft 168* (NY). Edwards Co.: Substation no. 14, yard, *Cory 6763* (G); 22 miles south of Rocksprings, *Cory 3197* (G). Hays Co.: San Marcos, *E. J. Palmer 12096* (M). Hidalgo Co.: Donna, *Tracy 9124* (G, M, NY). Lampasas Co.: Lampasas, Sept. 21, 1892, *Plank* (NY). Llano Co.: Llano, Aug., 1848, *Lindheimer* (M). Parker Co.: Weatherford, *Tracy 7858* (G, M, Mo, NY). Randall Co.: north of Canyon City, Aug. 13, 1900, *Eggert* (M). Red River Co.: Clarksville, Sept. 25, 1894, *Plank* (NY). Starr Co.: Rio Grande City, *Neally 222* (US). Tarrant Co.: Fort Worth, *Tracy 8167* (G, M, Mo, NY). Taylor Co.: Buffalo Gap Hills, Sayles Ranch, *Cory 1966* (G). Travis Co.: Austin, *Bogusch & Molby 5508* (O). Valverde Co.: 48 miles south of Ozona on Comstock Road, *Ferris & Duncan 3013* (M, NY). Webb Co.: Laredo, July 26, 1882, *Letterman* (M). Wilson Co.: Sutherland Springs, 25 miles southeast of San Antonio, *Ed. Palmer 1196* (G, M). ARIZONA. Pinal Co.: 8 miles west of Florence, *Peebles & Kearney 264* (A). Pima Co.: Tucson, Sept. 30, 1892, *Toumey* (C). Santa Cruz Co.: Santa Cruz River at La Noria, *Mearns 1168* (US).

This species is native in the New World where it is widely distributed. It is introduced generally in the Old World.

Several additional synonyms are cited by Boissier and Thellung. All these are, of course, later than *Euphorbia Chamaesyce* and are extra-limital. Since no authentic material of any of these supposed synonyms has been available no opinion as to their identity will be offered.

Small separated *Chamaesyce malaca* from *C. prostrata* as follows:

"Capsules pubescent along the angles 35. *C. prostrata*
Capsules pubescent all over but mainly so below the middle. . . 36. *C. malaca*"

The capsules of *C. prostrata* are glabrate on the sides of the carpels. Those with slightly more persistent hairs on the sides

of the carpels constitute *C. malaca*. The character does not hold. Small described the leaves of *C. malaca* as "1–1.5 cm. long", and those of *C. prostrata* as "4–6 mm. long". The leaf-length given for *C. malaca* was evidently taken from a juvenile specimen of *Euphorbia humistrata* collected at Verdigris, Oklahoma (Indian Territory), *B. F. Bush 537* (NY) which has the leaves as long as ca. 1.5 cm. But even the type of *Chamaesyce malaca* has leaves of mostly average size for what Small called *C. prostrata*.

The placing in this paper of *E. prostrata* Aiton in the synonymy of *E. Chamaesyce* needs comment. There has been no opportunity to examine any authentic material of the former. Aiton's description is so vague as to be applicable to more than one species. As a consequence of these circumstances there is no assurance that *E. prostrata* is here correctly interpreted. In absence of any basic evidence, it has seemed wise to continue the customary application of the name *E. prostrata*.

Customarily the name *E. Chamaesyce* is applied to an entity native in the Mediterranean region and eastward into Asia. Consequently it had not occurred to me to consider the possibility that the name might properly belong to a plant native in the New World. There seems to be only one author, Swartz, *Obs. Bot. Pl. Ind. Occ.*, 196. 1791, who has applied the name to any New World plant and this was ignored as a mere casual misapplication. However, while browsing through the specimens at Field Museum, Chicago, in Sept., 1939, I came upon a photograph of the specimen in the Linnaean herbarium and fragments from the same specimen. The photograph shows that the sheet upon which the specimen is mounted bears the customary abbreviation used by Linnaeus to indicate specimens collected by Patrick Browne, hence the specimen was collected in Jamaica. Jackson's Index to the Linnean Herbarium shows that the specimen was in Linnaeus' herbarium in 1753. The photograph and fragments had been filed at Field Museum in their proper place under *Ind. Occ.* in the folder of *E. prostrata* Aiton! There is no doubt that *E. Chamaesyce*, as represented in the Linnaean herbarium, is identical with *E. prostrata* as usually interpreted. This is not a new discovery, for, as I discovered in January, 1940, Thellung, in Ascherson & Graebner, *Syn.*

Mitteleur. Fl. 7: 477. 1917, notes in the synonymy of *E. prostrata*: "*E. Chamaesyce* P. Browne in Linné's Herbar (von Jamaica) nach B. Daydon Jackson briefl." Thellung then enumerates a few authors who have applied the name *E. Chamaesyce* in the sense of Linnaeus' herbarium to the plant naturalized in the Mediterranean region.

One of the fundamental rules to be followed in the typification of a Linnaean species is that the Linnaean specimen is to be taken as type, except in extraordinary cases, if he had it in his herbarium at the time the species in question was published and if it conforms to his diagnosis. Exceptional cases are rare and require a full and elaborate explanation to establish acceptable grounds for refusing to accept the Linnaean specimen as type. The force of custom is shown by the careful and extended explanation deemed necessary by Merrill, Bull. Torr. Bot. Club 60: 633-638. 1933, to justify his rejection of the Linnaean specimen as type of *Poa malabarica* L. In order to determine whether there were any possibility that Linnaeus casually applied the name *E. Chamaesyce* to a plant received perhaps long after the concept had been formulated, his Hortus Cliffortianus was examined, since it was among the earlier references cited in the Species Plantarum. In Hort. Cliff., 198. 1737, the species appears as follows:

"12. *Euphorbia inermis*, foliis oppositis oblique cordatis serrulatis uniformibus, ramis alternis, floribus solitariis."

Several synonyms were cited, then:

"*Crescit in agris & vineis aridis & arenosis Siciliae, Italiae, Galliae Narbonensis & Jamaicae. Corymbus in hac nullus; folia omnia uniformia, aequalia; flores ex alis ubique, albi, tetrapetali; caules alternatim ramosissimi. Folia in Europaea magis orbiculata, in Americana oblonga & saepius macula fusca in medio notata; caulis quam arctissime terrae appressus.*"

Since Jamaica and the plant of America are specifically mentioned in 1737, it was no casual chance whereby the name was applied to a New World plant in Linnaeus' herbarium. Consequently *Euphorbia Chamaesyce* must be typified by the Linnaean specimen. This is the plant commonly known as *E. prostrata* Aiton, which is native of the New World but now widely introduced in tropical regions. The numerous specimens in various herbaria which I have named *E. prostrata* Aiton must now be called *E. Chamaesyce* L.

Thellung, in Ascherson & Graebner, Syn. Mitteleur. Fl. 7: 455 footnote 2, 1917, stated "Das Original der *E. Chamaesyce* (vielleicht von Loeffling aus Spanien stammend?) gehört gleichfalls zur Abart *canescens* [of *E. Chamaesyce*] (B. Daydon Jackson briefl.)". I do not understand what Jackson could have been taking as type unless there were two specimens in the Linnaean Herbarium.

49. *EUPHORBIA LAREDANA* Millsp., Pittonia 2: 88. 1890. TYPE: Sandy plains, Laredo, Webb County, Texas, July 28, 1888, C. G. Pringle 2074 (F 197395!; photographs G!, W!; ISOTYPE NY!).—*Chamaesyce laredana* (Millsp.) Small, Fl. Se. U. S., 709, 1333. 1903.

Annual, more or less pilose-tomentose throughout; stems several to many, 10–20 cm. long, stout (1.5 mm. diam.) toward the base, internodes to 1 cm. long; leaf-blades extremely oblique even to the small upper ones, ovate to elliptic-oblong (distorted by the obliquity) 3–5 mm. long, margin entire or the large juvenile leaves with a few low discrete teeth, petioles less than 1 mm. long; stipules minute and obscured by the tomentum; peduncles ca. 0.5 mm. long; cyathia solitary at the nodes; involucre tomentose without, glabrous within except above, short-campanulate, cuneate to the peduncle, 1 mm. or less in diam., green-veined opposite the lobes; lobes deltoid, equaling or slightly exceeding glands, hairy; glands transversely oblong, 0.2–0.3 mm. long, yellowish; appendages absent to slightly wider than the glands; fifth gland a minute papilla; sinus slightly depressed and with long hairs; bracteoles reduced to one radial appendage opposite each gland, adnate to the involucre for half its length, entire to one- or two-parted to the base, hairy above; staminate flowers 3–5; androphores glabrous, 1 mm. long, included; gynophore tomentose above, glabrous below, exserted and reflexed at maturity; ovary sharply three-angled, tomentose, styles bifid, less than 0.2 mm. long; capsule glabrate on the sides of the carpels, the backs usually persistently tomentose, sharply three-angled, 1.3–1.5 mm. long, 1.5 mm. diam.; seeds sharply quadrangular, 1.1–1.2 mm. long, 0.6 mm. radially and tangentially, ovate to narrowly ovate radially, base concave-truncate, facets concave, with subregular, round, transverse ridges including the angles, tops of ridges and angles frosted white, brown between.—PLATE 662A.

Sandy sites in Webb, Starr and Hidalgo Counties, Texas (MAP 30). Representative specimens seen: TEXAS. Webb Co.: Laredo, Pringle 3747 (C, F, G, NY, O, P). Starr Co.: 5 miles north of Rio Grande City, Clover 1363 (NY). Webb Co.: Laredo, Aug., 1899, Mackenzie 50 (NY). Hidalgo Co.: Sullivan City,

Runyon 2541 (W). For citation of additional specimens see Bull. Torr. Bot. Club **63**: 431. 1936.

This species is very closely related to *E. Chamaesyce*. The following specimen, though rather intermediate, is referred to *E. Chamaesyce*: Laredo, Webb Co., Texas, July 26, 1882, *Geo. W. Lettermann* (M).

EXCLUDED AND DOUBTFUL SPECIES

Anisophyllum dentatum (Michaux) Haw., Syn. Pl. Succ., 162. 1812, is a member of *Euphorbia* subgenus *Poinsettia*.

Aplarina prostrata Raf., New Fl. N. Amer. **4**: 99. 1838, proposed without reference to *Euphorbia prostrata* Aiton. Not recognizable. Said to grow in Pennsylvania.

Aplarina? microphyla Raf., op. cit., 100. Not recognized from the description. From Louisiana and Texas.

Chamaesyce exstipulata (Engelm.) Rydb., Bull. Torr. Bot. Club **40**: 53. 1913, is a member of *Euphorbia* subgenus *Agaloma* (including section *Zygophyllidium*).

Chamaesyce oregonensis Millsp. ex Arthur, N. Amer. Fl. **7**: 766. 1926; Man. Rusts U. S. & Canada, 309. 1934. Merely listed as the host of a rust.

Euphorbia grisea Engelm. ex Boiss. in DC. Prod. **15** (2): 41. 1862. Reported from Texas by Cory, Bull. Texas Agr. Exper. Sta. **550**: 65. 1938.¹ I have seen no material to support this report which may be based on the supposition of Coulter, Contr. U. S. Nat. Herb. **2**: 388. 1894 (Bot. West. Texas) that this species occurred in Texas.

Euphorbia humifusa Engelm. ex Wiegand, Bot. Gaz. **24**: 51. 1897, in key, *lapsus* for *E. humistrata* Engelm.

Euphorbia hypericifolia L. var. *prostrata*, var. *multiflora*, and var. *simplex* Raf., Med. Fl. U. S. **1**: 183. 1828, *nomina nuda*.

Euphorbia ludoviciana Featherman, Ann. Rep. Geol. Surv. Louisiana **2**: 71. 1871, not Raf., Fl. Ludovic., 111. 1817. An isotype, at Gray Herbarium, of this species, shows it to be *Phyllanthus caroliniensis* Walter.

Euphorbia oregonensis Millsp. ex Seymour, Host Index Fungi N. Amer., 462. 1929. Merely listed as the host of a rust.

Euphorbia Peplis L., Sp. Pl. **1**: 455. 1753, has been found on ballast but has not become established and hence is excluded.—*Tithymalus Peplis* (L.) Scop., Fl. Carn. ed. 2, **1**: 340. 1772.—*Anisophyllum Peplis* (L.) Haw., Syn. Pl. Succ., 159. 1812.—*Chamaesyce Peplis* (L.) Prokhanov, Consp. Syst. Tithym. Asiae Mediae, 15, 1933.

Euphorbia setigerus [sic] Benth. ex Frick, Euphorbia Review **2**: 10. 1936, with brief description, is evidently a garbled account of some weedy species of *Euphorbia* inadvertently associated with the irrelevant name *Eremocarpus setigerus* Benth. According to Frick in a letter, the account was drawn from a newspaper report.

Xamesike deltifolia Raf., Aut. Bot., 98. 1840; not recognized. Florida. Specimen at Paris according to his notes shown me by Croizat.

Xamesike glauca Raf., op. cit., 97. Perhaps a prostrate individual of *Euphorbia maculata*. Kentucky, Virginia.

¹ Published Jan. 18, 1938 according to Cory in letter filed at Gray Herbarium.

Xamesike gracilis (Elliott) Raf., op. cit. 98; based on *Euphorbia gracilis* Elliott. Belongs to *E.* subgenus *Agaloma* (including section *Tithymalopsis*).

Xamesike hypericifolia Raf. var. *sanguinolenta* Raf., l. c. Probably equals *Euphorbia maculata* L. Pennsylvania.

Xamesike hypericifolia Raf. var. *parviflora* Raf., l. c. Identity uncertain. Alabama.

Xamesike micranthes Raf., l. c. Identity uncertain. Louisiana to Alabama.

Xamesike microphyla (Raf.) Raf., l. c.; based on *Aplarina? microphyla* Raf.

Xamesike prostrata (Raf.) Raf., op. cit., 99; based on *Aplarina prostrata* Raf.

Gandoger, Fl. Europae 20: 142. 1890 has described and given binomials under *Euphorbia* sect. *Anisophyllum* to three supposedly new entities from the United States (Pennsylvania, Nebraska, and Missouri). In addition he has named (as binomials) and described a total of 10 segregates of 2 species native in the United States but introduced into Europe. It seems best to continue the custom of ignoring all names published in this work of Gandoger's. The technical nomenclatural justification for this action at least in the case of *Euphorbia* is that the first of Gandoger's binomials under this genus were the names of the various subdivisions, in the case pertinent here, *Anisophyllum*. Also, the structure of the work indicates that the new binomials were subdivisions of species which form of nomenclature is inadmissible according to the International Rules of Botanical Nomenclature, Article 28.

LIST OF EXSICCATAE

The collectors' numbers are printed in *italics*; unnumbered collections are indicated by a dash. The numbers in parentheses are those of species and varieties treated in this revision.

- | | |
|--|--|
| Abrams, LeRoy. <i>1381</i> (25); <i>2661</i> (35a); <i>2952</i> (35b); <i>2990</i> (35a); <i>3187</i> (26b); <i>3789</i> (35b); <i>4097</i> (37); <i>4132</i> (45); <i>4178</i> , <i>4652</i> (35a); <i>5341</i> (3a). | Antisell, T. — (43). |
| Abrams, LeRoy, and E. A. McGregor. <i>206</i> (31). | Armer, Annie A. <i>5390</i> (30). |
| Allen, J. A. — (36, 45). | Arsène, G. <i>18987</i> (35a). |
| Allison, A. <i>148</i> (13). | Arthur, J. C. <i>79</i> (13). |
| Anderson, A. P. <i>777</i> (45); <i>1537</i> (13). | Ashcroft, G. B. — (13). |
| Anderson, L. E. <i>4479</i> (13). | Baker, C. F. — (35a, 36); <i>195</i> (35a); <i>453</i> (36); <i>1274</i> (35a). |
| Andrews, L. — (14, 45). | Baker, C. F., F. S. Earle & S. M. Tracy. <i>5</i> (36); <i>6</i> (47); <i>608</i> (35a). |
| | Baker, H. P. — (7b). |

- Baker, M. S. — (35a).
 Ball, C. R. 405 (13); 637 (48); 959, 1257 (36); 1259 (13); 1275 (30).
 Ballard, C. A. — (45); 161 (36); 526 (45); 527, 2604 (36); 2682, 2734, 2774, 2902 (35a); 3051 (36).
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 Bartholomew, Elam. — (47).
 Bartlett, G. H. — (1).
 Bartlett, H. H. 10559 (23).
 Bartram, E. B. 326 (22a); 1793 (1); 3053 (45).
 Bassett, G. W. — (13).
 Batchelder, C. F. — (45).
 Bates, G. M. 2988 (36).
 Bates, J. M. — (32a, 47); 3633 (48); 5025 (45).
 Beal, Mary. — (26b, 28).
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 Bean, R. C. — (45).
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 Benner, W. M. 5418 (45); 7008 (13); 7335 (45).
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 Berlandier. 140 (30).
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 Bissell, C. H., and D. H. Linder. 21755 (1); 21757 (14).
 Blake, J. — (30).
 Blake, S. F. — (45); 1813, 2033 (14); 3158 (36); 5651 (1); 7776 (12).
 Blanchard, W. H. — (45).
 Blankinship, J. W. 116 (36).
 Blankinship, L. A. — (36).
 Blewitt, A. E. 848 (14); 849 (1); 850 (13).
 Blomquist, H. L. — (13).
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 Britton, N. L. 330 (15).
 Broadhead, G. C. — (7a).
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 Brown, H. E. 541 (35a).
 Bunker, Mary. — (32a).
 Burgess. — (30).
 Burk. — (30).
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 Burnham, S. H. — (14, 36, 45).
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 Campbell, Jennie E. — (7b, 36).
 Cangemi, L., & L. Andrus. 1 (5).
 Carpenter. — (30).
 Carter, L. A. (Mrs.). — (13).
 Carter, W. R. — (14, 36).
 Castle, H. 104 (45).
 Chamberlain, E. B. —, 228 (45).
 Chandler, B. F. — (13).
 Chandler, H. P. 7026 (31).
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 Churchill, J. R. — (14, 45); 545 (1).
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- Clover, E. U. 356 (5); 783 (15); 1363 (49); 1364 (30); 1475, 1524, 1537 (15).
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 Coffman, Coral Fleenor. — (45).
 Collins, F. S. — (1, 48); 981, 1176 (45); 2872 (1).
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 Collom, Mrs. Rose E. — (39); 33 (25); 314 (10).
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 Cushman, J. A. — (1).
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 Cutler, H. C. 664 (39); 723 (26c); 2286 (4).
 Daniels, F. P. — (45).
 Darlington, Wm. — (13).
 Davis, J. J. — (1).
 Davis, John. 955 (13); 1419 (45).
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 Dayton, W. A. 486 (35a).
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- Eames, E. H. — (1, 13, 45); 45 (1); 54 (14).
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- (31); 759 (4); 798 (14); 2222 (26b); 2282 (32a); 2301 (31).
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- Spencer, Mary F. — (26b, 35b); 552 (31); 964 (35a); 970 (35b); 970 (45).
- Sperry, Omer E. T243 (13); T244 (12); 449 (23); 450 (12); 1358 (26c); 1464 (28).
- Stabler, L. M. — (1).
- Standley, Jeannette P. 307 (12).
- Standley, P. C. 4939 (47); 5054 (35a); 7053 (42); 7371 (36); 7499 (35a); 12656 (12); 40287 (18); 40295 (31); 40362 (7b); 40397 (42).
- Standley, P. C., & H. C. Bollman. 12243 (13).
- Stanfield, S. W. — (7a, 19, 29, 41a).
- Stearns, Elmer. — (4); 245 (39).
- Steele, E. S. & Mrs. 37 (13).
- Steele, E. S., & H. S. Pratt. — (25).
- Stephenson, Mary R. 191 (30).
- Stevens, G. W. 308, 350 (32a); 622 (7b); 833 (48); 834 (30); 835 (47); 1054 (45); 1055 (36); 1105 (31); 1334.1 (45); 1602 (47); 1603 (45); 1604 (30); 1640 (48); 1641, 1779 (36); 1798 (13); 1863 (30); 1864 (48); 1917½ (13); 2170 (45); 2182 (46); 2307 (45); 2309 (46); 2344 (7a); 2584 (45); 2960 (7a); 3277 (36).
- Stevens, O. A. 290, 384 (36).
- Stevens, W. C. — (13, 30).
- Steyermark, J. A. 506 (45); 8843 (46); 13925 (45); 13931, 14085, 15910 (46); 15972 (7a); 19543 (45); 19642 (7a); 19716, 19867, 20281 (46); 24316 (30); 24317 (46).
- Stone, Mrs. Frederick M. 373 (31).
- Stone, Witmer. — (45, 13); 1077A (45).
- Stratton, R. 206 (7a); 441 (20); 448 (35a); 459 (47); 656 (7b).
- Stuart, Robbie. 147 (7b).
- Sudworth, G. B. — (36).
- Suksdorf, W. N. 86 (36); 489 (36); 12327 (13).
- Sullivant, W. S. — (1).
- Svenson, H. K. 137 (45); 139 (13).
- Swingle, D. B. — (35a).
- Taylor, B. C. 784, 1568 (36).
- Templeton, B. 1632 (39).
- Thackery, F. A. 83 (25).
- Tharp, B. C. 881, 1180, 1416 (30); 2854 (7a); 3557 (42); 4427 (31); 6013 (19).
- Thompson, C. H. 2 (36); 60 (7b).
- Thompson, J. W. 3749 (36); 11122, 11891 (35a).
- Thornber, J. J. — (13, 36, 45, 47); 47 (42); 136 (10); 209 (12); 341 (28); 342 (37); 7111, 9055 (47); 9141 (11).
- Thurber, Geo. — (18, 20); 98 (31); 731 (47); 749 (31); 963 (43).
- Thuron, F. W. 4 (30).
- Tidestrom, I. 802 (22a); 6902 (13); 7028 (12); 7460 (13).
- Tolstead, W. L. — (7b); 621, 806 (36).
- Torrey, J. 478 (35a).
- Toumey, J. W. — (12, 31, 48); 260 (22a); 261 (42); 263 (26a); 266 (35a).
- Townsend, C. H., & C. M. Barber. 284 (9).
- Tracy, Joseph P. 6555 (35a).
- Tracy, S. M. 154 (32a); 437 (31); 2913 (45); 3125 (30); 4710 (29); 4717 (5); 6370 (29); 6376 (5);